



26. The tenders should be enclosed with a list of contracts already held by the tenderer at the time of submitting the tender and giving the following particulars:
  - a) Name of the work, value and address.
  - b) The balance work remaining to be done on the same.
27. a) The filled in tender sealed cover shall be handed over/couriered/speed post to at office of **Mr Ajeet Kumar Jaiswal, Sr. Engineer(SC&PV- PVSS, NEB 5<sup>th</sup> Floor, Electronics Division, Bharat Heavy Electricals Limited, Mysore road, Bangalore – 560 026)** before the time fixed for submission of tender.  
b) Tenders received after the due date & time of opening of tenders will be rejected.
28. The Contractors responsibility under this contract shall commence from date of receipt of the order or acceptance of tender.
29. Tenders submitted by speed post or courier service shall be posted with due consideration of any delay in postal delivery. Tenders received after the due date of opening tenders are liable to be rejected.
30. If proprietor or partner of a firm expires after the submission of tender or after the acceptance of tender, BHEL reserves the right to cancel the contract if the character of the firm undergoes a substantial change.
31. THE BHARAT HEAVY ELECTRICALS LIMITED will not be bound by any power of Attorney granted by the tenderer or changes in the composition of firm made subsequent to signing of the contract. They may however recognize such power of Attorney and changes after obtaining proper legal advice.
32. If the tenderer deliberately gives wrong information on tender regarding past unsatisfactory performance with BHEL sister units or any other Customer / clients, BHEL reserves the right to reject such tender at any stage including contract execution period and initiate penal action against the bidder as deemed fit.
33. Words imparting the singular number shall also be deemed to include the plural number and vice-versa where the context so require.
34. The General and Special Conditions are complementary to each other and where they are in conflict, the special condition shall prevail.
35. The expenses for completing the stamping agreement shall be borne by the contractor.
36. Unless or otherwise stated above tendered work includes men, material, machine and commissioning of equipment as agreed to in the contract.
37. Any covering letter and comments of the tenderer should be submitted along with the offer.
38. Should a tenderer or a contractor has a relative or in the case of firm or company, any of its shareholder's relative is employed in Bharat Heavy Electricals Limited, the authority inviting tenders shall be informed of this fact at the time of submission of the tender, failing which tender may be disqualified or if such fact subsequently comes to light.
39. These 'INSTRUCTIONS TO TENDERER' & GENERAL CONDITIONS OF CONTRACT OF BHEL' shall be deemed to form an integral part of the Contract agreement for the work to be entered into. The Contractor has to scrutinize the same, and when submitting his tender, indicate his acceptance of both. In cases of variation between the two in any matter, the conditions in the 'THE INSTRUCTIONS TO TENDERER' shall prevail. (Extracts of important clauses of BHEL GCC are enclosed).

40. All operations to be carried out by the Contractor during the execution of the contract such as drilling, welding etc., shall be done with proper equipment to be brought by the tenderer. Contractor shall make his own power and water supply.
41. The Contractor shall comply with the provision of Employees Provident Fund's and miscellaneous Provisions Act 1952 and rules, regulations and other orders issued there under. He as an employer shall be liable to pay employer's contribution/deductions towards PF under the PF Act in respect of all labour employed by him for the execution of the contract in accordance with the provisions of the Employees' Provident Funds and Miscellaneous Provisions Act, 1952 as amended from time to time. For this purpose, he shall indicate the code number obtained from the Regional Provident Fund Commissioner or he should obtain a code number if he has not and produce the Photostat copy of the challan receipt of monthly remittance of the contribution made by him to the Commissioner. He shall also furnish such returns such returns as are due, under the Act, to be sent to the appropriate authorities through the Principal Employer".
42. The Contractor should get himself registered with the E.S.I Authorities as an independent Employer, obtain a separate code number and remit the dues in respect of the Labour employed by him for the work and produce the challan/Receipts of remittance of the ESI contributions due under the E.S.I Act to the Company authorities. He shall also furnish such returns, as are due, under the Act, to be sent to the appropriate authorities' through the Principal Employer. The contractor can remit their ESI & PF through a sub-agent who processes the ESI & PF code and agrees to enter an MOU with the contractor.
45. If any action is brought in by P.F. Commissioner/ ESI authorities on BHEL for the work done by the Contractor for his labourers regarding PF/ESI amount due, short remittances, non-remittances etc., the Contractor shall defend the case on behalf of BHEL and / or reimburse BHEL the expenses so incurred.
46. The Contractor shall apply and obtain license under Contract labour (R&A) Act 1970 and comply the relevant provisions of this Act in respect of the labour employed by him for executing this contract. The contractor shall furnish necessary returns to the authority through the Principal Employer.
47. Contractor shall insure all his labourers and material. Any claim by his Employees for damages shall be settled by the Contractor even if action is against BHEL or to reimburse the legal expenses incurred by BHEL.
48. Any action brought in by anybody on BHEL regarding patent, right etc., used by Contractor in execution of work shall be defended by the Contractor and / or reimburse BHEL the cost of the same.
49. Contractor shall produce necessary records, documents; explanation whenever he is called upon to do by any Government Agencies.
50. Contractor should obtain "Workmen Compensation Policy" for their Employees.
51. EXTRA ITEMS

No extra items of work shall be carried out by the contractor other than those authorized to do so in writing by the Engineer-in-charge. For any such items of work executed as per instructions of Engineer-in-charge, the rates will be fixed on the basis indicated under clause 50 of BHEL GCC/as per terms and conditions of BHEL. The schedule of rates to be followed in this case will be rates offered by BHEL for similar works in other contracts awarded by BHEL upon mutual agreement.



**BHARAT HEAVY ELECTRICALS LIMITED**

(ELECTRONICS DIVISION)

M YSORE ROAD- BANGALORE-26

GENERAL CONDITIONS OF CONTRACT/ TECHNICAL SPECIFICATION

It is hereby agreed by me/us that the BHEL General Conditions of Contract including subsequent amendments/ additions/deletions to clauses if any, and conditions pertaining the settlement of disputes by Arbitration form an integral part of the tender documents and that the tender submitted by me/ us is subject to the aforesaid BHEL General Conditions of Contract/ Technical Specification for Civil works which has been read and accepted by me/us.

**CONDITIONS OF CONTRACT****LABOUR**

The Contractor shall employ labour in sufficient numbers either directly or through sub-contractors to maintain the required rate of progress and of quality to ensure workmanship of the degree specified in the contract and to the satisfaction of the Engineer-in-charge. The contractor shall not employ in connection with the works any person who has not completed his eighteen years of age.

The contractor shall furnish to the Engineer-in-charge at the intervals specified by him. A distribution return of the number and description by trades of the people employed on the works. The Contractor shall also submit on the 4th and 19th or every month to the Engineer-in-charge a true statement showing in respect of the second half of the preceding month and the first half of the current month (i) the accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused by them and (ii) the number of female workers who have been allowed maternity benefits as provided in the maternity benefit Act, 1961 or Rules made there under and the amount paid to them.

The contractor shall pay to labour employed by him either directly or through sub-contractors wages not less than fair wages as defined in the contractors Labour Regulations.

The Contractor shall in respect of labour employed by him either directly or through sub-contractors comply with or cause to be complied by with sub-contractors, labour Regulations in regard to all matters provided therein.

The Contractors shall comply with the provisions of the payment of wages Act, 1936, Minimum Wages Act, 1948, Workmen's Compensation Act 1923, Industrial Disputes Act, 1947, Maternity Benefit Act 1961 or any modifications there of or any other law relating thereto and rules made there under from time to time.

The Contractors shall be liable to pay his contribution and the employees' contribution of the State Insurance Scheme in respect of all labour employed by him for the execution of the contract, in accordance with the provision of "The Employees', State Insurance Act, 1948", as amended from time to time. The Contractors shall apply to the ESI Authorities, get himself registered with them and obtain a code Number. He shall pay the remittances under his code Number only. The Contractor shall be liable to pay his contribution and the Employees' contribution towards PF as per Provident Fund Rules and Regulations in respect of all labour employed by him for the execution of the contract.

The contractor shall apply to the PF Authorities, get himself registered and obtain a code number from them. He shall pay the remittances towards PF under his code Number only. The Engineer-in-charge shall on a report having been made by an Inspecting Officer as defined in the Contractors Labour Regulations have the power to deduct from the moneys due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract for the benefit of workers, non -



payment of wages or of deductions made from him or their wages which are not justified by the terms of the contract of non-observance of the said contractor's Labour Regulations.

The Contractors shall indemnify the BHEL against any payment to be made under and for observance of the regulation aforesaid without prejudice to his right to claim indemnity from these sub-contractors.

#### **MODEL RULES FOR LABOUR WELFARE**

The Contractor shall at his own expense comply with or cause to be complied with model Rules for Labour Welfare as appended to these conditions or rules framed by Government from time to time for the protection of health and for making sanitary arrangements for workers employed directly or indirectly on the works, In case the Contractors fails to make arrangements as aforesaid the Engineer-in-charge shall be entitled do so and recover the cost thereof from the contractor.



ENCLOSURE: B

**SAFETY CODE**

**RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF SAFETY OF MEN, EQUIPMENT, MATERIAL AND ENVIRONMENT**

1. Before commencing the work, contractor shall submit a "SAFETY PLAN" to the authorized BHEL Official. The 'SAFETY PLAN' shall indicate in detail the measure that would be taken by the contractor to ensure safety of men, equipment, material and environment during execution of the work. The plan shall take care to satisfy all requirements specified hereunder. The contractor shall submit Safety Plan along with his offer. During negotiations before placing of work order and during execution of the contract BHEL shall have right to review and suggest modification in the Safety Plan. Contractor shall abide by BHEL decision in this respect.
2. The contractor shall take all necessary safety precautions and arrange for appropriate appliances as per direction of BHEL or its authorized officials to prevent loss of human lives, injuries to personnel engaged, and damage to property and environment.
3. The contractor shall provide to its work force and ensure the use of the following personal protective equipment as found necessary and as directed by the authorized BHEL Officer: -Safety Helmets conforming to IS-2925: 1984.
  - (i) Safety Belts conforming to IS-3521: 1983.
  - (ii) Safety Shoes conforming to IS-1989: 1978.
  - (iii) Eye and Face protection devices conforming to IS-8520: 1977 and IS-8940: 1978.
  - (iv) Hand and body protection devices conforming to:
    - IS-2573: 1975
    - IS-6994: 1973
    - IS-8807: 1978
    - IS-8519: 1977

All tools, tackles, lifting appliances, material handling equipment scaffolds, cradles, safety nets, ladders, equipment's etc. used by the contractor shall be of safe design and construction. These shall be tested and certificate of fitness obtained before putting them to use and from time to time as instructed by authorized BHEL Official who shall have the right to ban the use of any item.

All electrical equipment's, connections and wiring for constructions power, its distribution and use shall conform to the requirement of the Indian Electricity Act and Rules. Only electricians licensed by the appropriate statutory authority shall be employed by the contractor to carry out all types of electrical works. All electrical appliances including portable electric tools used by the contractor shall have safe plugging system to source of power and be appropriately earthed. The contractor shall not use any hand lamp energized by electric power with supply voltage of more than 24 volts. For work in confined space lighting shall be arranged with power sources of not more than 24 volts.

The Contractor shall adopt all fire safety measures as laid down in the "Code for fire Safety at Construction Sites" issued by the Safety Department of the Construction Management (HQ) of BHEL and as per directions of the authorized BHEL Official. A copy of the above referred "Code of Fire Safety at the Construction Sites" shall be made available by BHEL to the contractor for reference, on demand by the contractor, during tendering stage itself.

Where it becomes necessary to provide and/or store petroleum products, explosives, chemicals and liquid or gaseous fuel or any other substance that may cause fire or explosion, the contractor shall be responsible for carrying out such provisions and/or storage in accordance with the rules and regulations laid down in the relevant government acts, such as Petroleum Act, Explosives Act,



Petroleum and Carbides of Calcium Manual of the Chief Controller of Explosives, Govt. of India. etc., prior approval to the authorized BHEL Official at the site shall also be taken by the contractor in all such matters.

The contractor shall arrange at his cost (wherever not specified) appropriate illumination at all work spots for safe working when natural daylight may not be adequate for clear visibility.

The contractor shall be held responsible for any violation of statutory regulations local, state or central and BHEL instructions that may endanger safety of men, equipment, material and environment in his scope of work or another contractor or agencies. Cost of damages if any, to life and property arising out of such violation of statutory regulations and BHEL instructions shall be borne by the contractor. In case of a fatal or disabling injury accident to any person at construction sites due to the lapses by the contractor, the victim and/or his/her dependents shall be compensated by the contractor as per statutory requirements. However, if considered necessary, BHEL shall have the right to impose appropriate financial penalty on the contractor and recover the same from payments due to the contractor for suitably compensating the victim and/or his/her dependents. Before imposing any such penalty, appropriate enquiry shall be held by BHEL giving opportunity to the contractor to present his case.

In case of any damage to property by the contractor, BHEL shall have the right to recover cost of such damages from payments due to the contractor after holding an appropriate enquiry.

In case of any delay in the completion of a job due to mishaps attributable to lapses by the contractor; BHEL shall have to recover cost of such delay from payments due to the contractor, after notifying suitably and giving him opportunity to present his case.

If the contractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given a reasonable opportunity to do so; and/or if the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instructions regarding safety issued by the authorized BHEL Official, BHEL shall have the right to take corrective steps at the risk and cost of the contractor after giving a notice of not less than seven days indicating the steps that would be taken by BHEL.

The contractor shall submit report of all accidents, fires and property damage, dangerous occurrence to the authorized BHEL Official immediately after such occurrence, but in any case not later than twelve hours of the occurrence. Such reports shall be furnished in the manner prescribed by BHEL. In addition, the contractor to the authorized BHEL Official shall also submit periodic reports on safety from time to time as prescribed.

Before commencing the work, the contractor shall appoint/nominate a responsible officer to supervise implementation of all safety measures and liaison with his counterpart of BHEL.

If safety record of the contractor in execution of the awarded job is to the satisfaction of Safety Department of BHEL, issue of an appropriate certificate to recognize the safety performance of the contractor may be considered by BHEL after completion the job.



## **SPECIAL CONDITIONS OF CONTRACT**

### **1. GENERAL**

The special conditions of contract and other contract documents are complimentary to each other and shall be read in conjunction with each other. In case of any conflict of meanings between the special conditions of contract and the BHEL General Conditions of Contract the provisions of the special conditions of contract shall override the corresponding provisions of the BHEL General Conditions of Contract.

### **2. SCOPE OF WORK**

The scope of work includes for the full, final and entire completion of all works as detailed in specifications and drawings, which forms part of this Contract. The scope of work also includes cleaning/removing all debris in line with bill of quantity as directed by Engineer In-charge. The scope of work under this contract shall cover supply of all materials, labour, tools, and plants etc., unless otherwise specified in the specifications, descriptions of items or in foregoing clauses.

### **3. SITE CONDITIONS**

a) Before tendering the Contractor shall get themselves acquainted with site conditions such as the nature of soil likely to be encountered during the course of the work etc.,. The rates quoted by the contractor shall be deemed to have been quoted after getting acquainted with the prevailing site conditions. Initial jungle clearance, stripping of top soil etc., shall also be included in the quoted rates. No claims on the pretext of ignorance of site conditions shall be entertained.

b) The site of work is as mentioned in the Tender document.

### **4. SITE FACILITIES**

#### **A. LAND**

The Employer will allot land as available free of cost to the contractor for his office stores. He must maintain the areas allotted to him in a neat and clean conditions as required by the Employer. The contractor shall provide adequate storage and office facilities with approval from the Engineer. The rate quoted by the contractor shall be deemed to include for these and no separate payment will be made towards these. On completion of work, the site shall be cleaned by the contractor of all materials, temporary debris, rubbish plants and equipment's, belonging to the contractor at no extra cost. The site and surroundings shall be handed over in a neat and clean condition. In case of any failure by the contractor, the employer will get inside cleared at risk and cost of the Contractor.

#### **B. POWER AND WATER SUPPLY**

Facilities for drawing Power and water required at site for execution of the works shall be arranged by the contractor at his expense and risk. The necessary source for power & water supply has to be organized by vendor. Necessary distribution box, extension board points duly earthed, and with armoured safe power cables to be laid across the field provided point shall be in the scope of the tenderer. Further, laying of water intake and distribution pipes across the Site to various points of work from Electricity source provided water source point shall be in the scope of the tenderer. If required D.G generation sets shall be provided for Power arrangement by the contractor at his own cost. The tenderer shall make provision for temporary storage of water at suitable locations with pump if required to reach the water supply to work areas. The contractor will have to make his own arrangements for the same, without claiming any extra charge for the power and water drawl and distribution equipment.



#### **5. MACHINERY**

The Contractor shall at his own expense, supply all tools, plant and equipment (hereinafter referred to as T & P) required for execution of contract, as specified in the tender documents. whole of the works shall be executed in perfect conformity with the specifications and drawings. If contractor perform any works in a manner contrary to the specifications and drawings and without reference to the Engineer-in-charge, he shall bear all the costs arising or ensuring there from.

- a) All technical documents regarding the construction of works are given in the metric system and work should be carried out according to metric system.
- b) The work shall be carried out as per detailed drawings supplied by the employer. The working drawings shall be emailed progressively to the contractor free of cost. The contractor shall keep one set of drawings (duly protected from dust and wear and tear) at his own expenses always available at site for reference of Engineer-in-charge and other representatives.
- c) The works shall be carried out as per detailed specifications enclosed with the tender. For items for which there is no mention in the drawings, detailed specification relevant IS specification (latest edition) shall be followed.
- d) The contractor shall submit to the Employer for their approval complete drawings, of all temporary works and staging which he may require for carrying out the works shown in the drawings.

He shall at the same time if so required by the Employer submit his calculations relating to strength and anticipated deflection in respect of any aforesaid temporary works. He shall also submit for the approval of Employer drawings showing the methods he proposes to adopt for the erection of the various parts of the temporary works. Any modification to the drawings that may be required by the Employer shall be made by the contractor at his own cost. However, notwithstanding the approval of modification required for temporary works, the contractor shall be fully responsible for their efficiency, security and maintenance and for all obligations and risks in regard to such works, specified or implied in this contract and be shall reinstate the same at his own cost, should any mishap or accident occur causing damage or injury there from, subject however, to such clauses of the General conditions as may be applicable in such cases.

#### **6. BENCH MARKS AND REFERENCE POINTS**

The contractor shall construct and maintain proper benchmarks and reference points of the inter section of all main walls, no separate payment shall be made for this and rates quoted deemed to include this cost. Surveying where ever required is in contractor scope.

#### **7. SAFETY PRECAUTIONS**

The contractor shall at times observe the safety code and make necessary action as required in the tender. In default thereof, the employer may get this done departmentally or through other agencies and recover the cost from the contractor.

The Contractors shall also abide by all the security regulations promulgated from time to time by employer.

#### **8. LABOUR COLONIES**

Labour camp will not permitted within the project premises.

#### **9. ESCALATION**

The rates to be quoted by the tenderer shall be firm and shall cover and include all statutory levies, arising from, acts passed by parliament or by state legislature, the rates shall further be deemed to include



statutory levies arising from such Acts, Central or State, which may come in to force subsequent to submission of tenders. The tenderer shall note that no claim for enhancement of rates, on the ground that existing statutory levies have been increased, or that new statutory levies have come in to effect after tender, or on any other ground, will be entertained on any account.

#### **10. QUANTITY**

The probable quantities of the several items of work are furnished in the schedule of quantities. It must be clearly understood that neither the probable quantities nor the value of individual items nor the aggregate value of the entire work shall be binding on the Employer/ Engineer does not in any way assure the contractor or Guarantee that the said probable quantities are correct or that the work will correspond to these. The Employer/ Engineer reserve the right to omit, vary or add to the item/work described in the schedule, of quantities and no claim for compensation will be entertaining on this account.

#### **11. VARIATION/ DEVIATION IN QUANTITIES**

The contractor shall not make any alteration in addition to or omission from the work as described in the tender document except in pursuance of the written instructions of the Engineer-in-charge. No such deviation from the work described in the tender documents shall be valid unless the same has been specifically confirmed and accepted by the accepting officer in writing and incorporated in the contract. The rates quoted are firm.

#### **12. MATERIALS**

BHEL will not supply any materials unless otherwise specified.

#### **13. SUPPLY BY CONTRACTOR**

The work is for a completed job including labour and supply of all materials except those otherwise specified in the bid document.

The material and works shall be subject to inspection and test as per field quality plan (FQP) duly approved by **BHEL/ GACL**.

All materials supplied by the contractor according to the contract conditions shall be subject to inspection and passing by the Engineer-in-charge or his representatives from time to time, the contractor providing all facilities for such instruction free of cost.

BHEL officers connected with the contract shall have the power at any time to inspect and examine any stores or materials intended to be used in or on the work, whether on the site or at any factory or workshop or other place where such stores or materials are being fabricated or manufactured or at any place the same are lying and the contractor shall give necessary facilities for such inspection and examination.

The Engineer-in-charge shall be entitled to have tests made of any stores or materials supplied by the contractor shall provide at his own expense all facilities which the Engineer-in-charge may require for this purpose. If at the discretion of the Engineer-in-charge an independent expert is employed to make any such tests his charges shall be borne by the contractor only if the tests disclosed that the said stores or materials are not in accordance with the provision of the contract.



Should the Engineer-in-charge/Civil Engineer consider at any time during the construction or reconstruction on prior to the expiry of the Maintenance Period that the stores or materials provided by the contractor are unsound or of quality inferior to that contracted for, or otherwise not in accordance with the contract (in respect where the decision of the Engineer-in-charge/Civil Engineer shall be final and conclusive) the contractor shall on demand, in writing from the Engineer-in-charge specifying the stores or materials complained of, not with-standing that the same may have been inadvertently passed, certified that and paid forth with remove the stores or materials so specified and provide other and suitable stores or materials at his own expense, to the entire satisfaction of the Engineer-in-charge/Civil Engineer and in the event of his failing to do so within a period to be specified by the Engineer-in-charge/Civil Engineer, in his demand aforesaid, the Engineer-in-charge/Civil Engineer may replace within the other stores or materials complained of at the risk and expense in all respect of the contractor.

The liability of the contractor under this conditions, shall not extend beyond the maintenance period aforesaid except as regards stores or materials which the Engineer-in-charge/Civil Engineer shall have previously given notice to the contractor to replace (Maintenance period for any work under this organization will be six months from the date of actual completion of the particular work and handing over to BHEL).

#### **14. INTERRUPTION TO THE WORKS**

While quoting the rates/prices the Contractor should take in to account the fact that due to the design or other stipulations at site, or the necessity to follow a particular sequence of overall construction operation, or non-supply of particular drawings, or the connected work or other reasons, interruptions are likely to be encountered in a work of this nature and magnitude. No claims for such interruptions will be entertained on any account.

#### **15. EXTENSION OF TIME OR PENALTY/ LIQUIDATED DAMAGES**

Extension of time or penalty/liquidated damages as the case may be, will be determined as stipulated in clause No. 2.7.9 of BHEL General Conditions of Contract 2019.

In addition to the above penalty of 0.5% per week of delay on the value of work order limited to EMD value will be levied, if vendor fails to start the O& M work within one week from the date of notice.

#### **16. COMPLETION OF WORK AND MEASUREMENT**

- a) All work shall be carried out according to authorized dimensions and measurement will be restricted to those authorized dimension even though the Contractor may for convenience of this work exceed the authorized dimensions.
- b) All work shall be measured in accordance with the applicable standard method of measurements prescribed by the Indian Standard Institution (1200 latest edition) unless otherwise specified.
- c) The Contractor shall admit for technical inspection, works which are likely to be embedded or covered by other works and have the necessary measurement books and certificates to this effect duly signed by the Engineer before the works are covered.



- d) On completion of the work, the Contractor must submit to the Engineer the following documents for passing of works.
  - i) A copy of the working drawing showing there on all addition and alterations in the process of execution.
  - ii) A certificate for embedded and covered up works as in sub-para (C) above
- e) The authorized Contractors representative and a representative of the Employer shall jointly sign a certificate of handing over any completed work and date of signature of that certificate will be that the date from which the maintenance period of that unit will reckoned.
- f) Notwithstanding the above, insurance cover has to be taken by the contractor for the full value of work as also for the duration of the contract period. 50% of the Security Deposit shall be released only on the total completion of the building and handing over to BHEL to their satisfaction. Remaining 50% of Security Deposit shall be released subject to the stipulation in BHEL's GOC after 6 months from the date of completion of the building.

#### **17. MAINTENANCE OF WORK**

The contractor will be responsible for the maintenance of works during the period of construction until the various items are taken over, and for a further period of six months, from the date of taking over.

If the contractor fails to maintain the building satisfactorily, it will be got done by other agency and cost towards such maintenance together with departmental charges will be recovered from his bills/ dues.

#### **18. SECURITY DEPOSIT**

Upon acceptance of the tender, the successful bidder within the time and amount specified in the Letter of Intent must deposit Security Money with BHEL.

The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer will be converted and adjusted towards the required amount of Security Deposit. At least 50% of the required Security Deposit, including the EMD, should be submitted before start of the work.

Balance 50% of the Security Deposit will be collected by BHEL by deducting 10% of the gross amount progressively from each of the running bills of the Contractor till the total amount of the required Security Deposit is collected.

50% of the Security Deposit (before start of the work) of 5% of the contract value (less EMD) may be submitted in the following forms:

i) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL

ii) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL

iii) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL)

iv) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL)

(Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith).



Security Deposit shall be released to the Contractor upon fulfilment of contractual Obligations as per terms of the contract.

The Security Deposit shall not carry any interest.

NOTE: Accepting of Security Deposit against Sl. No. (iv) above will be subject to hypothecation or endorsement on the documents in favour on BHEL.

For extra items of work and deviated quantities, security deposit will be recovered at 10% of the value of deviated amount. The security deposit will be released as stipulated under relevant clause of GCC 2019.

#### **19. RUNNING ACCOUNT PAYMENTS**

During execution of work, monthly payments of all works in place will be made on the basis of measurements recorded in measurement sheet/book/register format in respect of items executed but no claim on the account will be entertained, if for any reason payments are not so made. PRICE VARIATION clause not applicable.

#### **20.1. MOBILIZATION ADVANCE/ ADVANCE PAYMENT - NOT APPLICABLE**

#### **20.2 INTEREST & RECOVERY - NOT APPLICABLE**

#### **20.3 STATUTORY DEDUCTION TOWARDS INCOME TAX WILL BE MADE AS PER RULES**

21. In respect of all labour directly or indirectly employed on the work by the Contractor, the Contractor shall comply with the provisions of the contract labour (Regulation and Abolition) Act 1970 or any amendment thereof and all legislations and rules of the State and or Central Government or other Authority, framed from time to time governing the protection of health, sanitary arrangements, wages, welfare and safety for labour employed on building and construction works. The rules and other statutory obligations with regard to fair wages, welfare and safety measures, maintenance of the register etc., will be deemed to be part of the contract.

22. The Contractor is required to take insurance for all workers employed on works towards payment for workmen compensation. The insurance has to be taken out within 15 days of the award of work and has to be produced at the time of signing agreement. Half (1/2%) shall be deducted for every bill if the contractor fails to produce a proof of having taken such an insurance to cover his workmen. However, the contractor shall be fully responsible for all the consequences arising out of such default. This may also be read with relevant clauses of BHEL GCC 2019.

#### **23. TIME OF COMPLETION**

The date of commencement of work shall be counted from the date of handing over the site to the contractor. It may be clearly understood that time is the essence of the contract and the entire work should be completed within the time imposed in the tender document letter of intent.

24. The Contractor has to pay the Works Contract Tax (Under relevant section of the State Government Act) of their own on Monthly basis.

25. The management of BHEL shall be at liberty to terminate the contract by issuing a month's notice to the contractor without assigning any reason what so ever. As regards unsatisfactory performance or



noncompliance with any of the terms & conditions of the contract by the contractor. The management of BHEL shall have the right to terminate the contractor forthwith without notice & rearrange the balance work through other agencies at the risk & cost of the contractor & under such circumstances, the Earnest Money Deposit/ Security Deposit paid by the contractor shall stand forfeited.

**26. Tenderers should not disclose any price bid details/ discounts in the technical bids.**

**27. WORKMEN COMPENSATION POLICY**

The contractor is required to take Insurance for all the workers employed on the works towards payments for workmen compensation. The Insurance has to be taken out within 15 days of the award of work and has to be provided at the time of signing the agreement. Half percent (0.5%) of the amount shall be deducted from every bill if the contractor fails to produce a proof of having taken such an insurance to cover his workmen. However, the contractor shall be fully responsible for the consequences arising out of such default.



## FORM OF TENDER

Having examined the invitation to bid, Instructions to Bidder, General conditions of contract, Special conditions of the contract, Specifications tender schedule, Contract drawings and other documents for the above work, we the undersigned, offer to construct, erect complete and maintain the whole of the said in conformity with the said bid documents on the terms and conditions and under the provisions set out or called for in the contract documents at the rates listed in the schedule of unit prices or elsewhere in the contract documents.

We undertake if our bid is accepted, to commence the works within 7 days from the date of issue of award and to complete and delivery the whole of the works comprised in the contract as per the time schedule agreed to the contract document.

We agree to abide by this bid for the period of three months from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before expiry of the period.

Until and unless a formal agreement is prepared and executed this bid, together with your award thereof shall constitute a binding contract between us.



ENCLOSURE: C

## CONDITIONS OF CONTRACT

### ARBITRATION:

Except where otherwise provided for in the contract all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or has been other as to any other questions, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, of or the execution or failure to execute the same whether arising during the program progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration of the Executive Director/General Manager of BHEL and if the Managing Executive Director/General Manager Chief Engineer is unable or unwilling to act, to a as the sole arbitration of some other person appointed by the Executive Director / General Manager, willing to act as such Arbitrator. There will be no objection if the arbitrator so appointed is an employee of BHEL EDN or an employee of any other unit of BHEL and that he had to deal with the matters to which the contract relates and that in the course of its his duties as such he had expressed views on all or any of the matters in dispute or difference. The Arbitrator to whom the to matter is originally referred being transferred or by vacating his office or being unable to act for any reason, such Executive Director / General Manager as aforesaid at the time of such transfer, vacation of office or inability to act, shall appoint account another person to act as arbitrator in accordance with the terms of the contract, such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by such Executive Director/General Manager or an employee appointed as arbitrator as aforesaid should act as arbitrator and the arbitrator shall give reasons for the award.

Subject as aforesaid the provision of the Arbitration Act, 1940 or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceeding under this clause.

It is a term of a contract that the party involving invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

The arbitrator(s) may from time to time with consent of the parties enlarge extend the time, for making the publishing the awards.

The work under the contract shall, if reasonably possible, continue during the arbitration proceeding and no payment due to or payable to the contractor shall be withheld on account of such proceedings.

The arbitrator shall be deemed to have entered on the reference on the date he issued notice to both the parties fixing the date of the hearing.

The arbitrator shall give a separate speaking award in respect of each dispute or difference referred to him.

The venue of arbitration shall be such place as may be fixed by the arbitrator in his sole discretion.

The award of the arbitrator shall be final, conclusive and binding on all parties to this contract.



**Certificate by Chartered Accountant on letter head**

This is to Certify that M/S .....  
(hereinafter referred to as 'company') having its registered office at .....  
is registered under MSMED Act 2006, (Entrepreneur  
Memorandum No (Part-II) ..... dtd:.....,  
Category: ..... (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the  
latest audited financial year ..... as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost  
excluding land and building and the items specified by the Ministry of Small Scale Industries vide its  
notification No.S.O.1722(E) dated October 5, 2006 :  
Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and  
furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED  
Act, 2006:  
Rs.....Lacs

**(Strike off whichever is not applicable)**

The above investment of Rs.....Lacs is within permissible limit of  
Rs.....Lacs for .....Micro / Small (Strike off which is not applicable)  
Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) (Strike off which is not  
applicable) and the date of graduation of such enterprise from its original category is .....  
(dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such  
enterprise from its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published  
in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant



## ANNEXURE II

### Electronic Funds Transfer (EFT) OR Paylink Direct Credit Form

Please Fill up the form in **CAPITAL LETTERS** only.

TYPE OF REQUEST(Tick one): ☐ CREATE ☐ CHANGE

BHEL Vendor / Supplier Code:	
Company Name :	
Permanent Account Number(PAN):	
Address	

City: PINCODE STATE

Contact Person(s)	
Telephone No:	
Fax No:	
e-mail id:	

1 Bank Name:	
2 Bank Address:	
3 Bank Telephone No:	
4 Bank Account No:	
5 Account Type: Savings/Cash Credit	
6 9 Digit Code Number of Bank and branch appearing on MICR cheque issued by Bank	
7 Bank swift Code(applicable for EFT only)	
8 Bank IFSC code(applicable for RTGS)	
9 Bank IFSC code(applicable for NEFT)	

- A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.
- B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
- C This authority remains in full force until BHEL, EDN, Bangalore receives written notification requesting a change or cancellation.
- D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:

Designation:

Telephone NO. with STD Code

Company Seal

#### Bank Certificate

We certify that \_\_\_\_\_ has an Account No \_\_\_\_\_ with us and we confirm that the bank details given above are correct as per our records.

Date:

(.....)

Place:

Signature

Please return completed form along with a blank cancelled cheque or photocopy thereof to:

Bharath Heavy Electricals Ltd,

Attn:

Electronics Division, Mysore Road,

BANGALORE - 560 026

In case of any Query, please call : 080-26998xxx / 2674xxxx or fax no. 080-2674xxxx



ANNEXURE-III

Ref.  
Date:

**SITE INSPECTION CERTIFICATE**

This is to Certify that, I /  
We.....

..... had inspected the proposed  
.....

Operation & Maintenance site thoroughly and understood the scope of works to be carried out  
in

line with construction drawings/ designs/ data/ Bill of quantities/schedule of items/

Specifications as brought out in the Tender as desired by BHEL.

Agreeable to all Terms & Conditions of Contract and assure to complete the work

Within the stipulation time frame.

Signature of the contractor

Name:  
Seal



### **Additional Clauses for GST:**

1. BHEL GST Number of Nodal Agency:

Nodal Unit Registered as Supplier of Goods/ Services in GST:

GSTIN of Nodal Unit: Will be intimated later after award of work.

2. HSN (Harmonized System of Nomenclature) / SAC (Services Accounting Code) to be mandatorily mentioned in all quotations & invoices submitted.
3. Invoice submitted should be in the format as specified under GST Laws viz. all details as mentioned in Invoice Rules like GSTN registration number, invoice number, quantity, rate, value, taxes with nomenclature – CGST, SGST, IGST mentioned separately, HSN Code / SAC Code etc.
4. Payment of GST to vendors as applicable will be made only if it is matching with data uploaded by Vendors
5. Vendors to give undertaking that GST as mentioned in the Invoice has been paid/will be paid either through cash or admissible input credit and also file the returns
6. For invoices paid on Reverse charge basis – that it is “payable on reverse charge basis” to be mentioned on the invoice.
7. With respect to supplies, vendor should intimate BHEL immediately on dispatch for parallel billing on customer
8. Vendor should get GST registration, if not available, in the state of Gujarat immediately after placement of order.


UNPRICED PRICE BID						
NAME OF WORK: OPERATION AND MAINTENANCE WORKS OF GACL 15M W SPV POWER PLANT AT CHARANKA, GUJRAT FOR A PERIOD OF 103 MONTHS (Approx.)						
Sl No	Activity description	Scope of Work & Remarks	Unit	Qty	Unit rate excluding GST (Rs)	Amount excluding GST (Rs.)
		<b>Category A</b>				
1	Water cleaning of solar modules of approximately 55,000 nos. <b>(Three cycles per month, each cycle shall consist of cleaning of entire 55,000 Nos modules).</b>	(i) <b>Minimum 4</b> labourers to be allocated for this activity. (ii) <b>Water shall be supplied by GPCL and will be stored in underground sumps constructed at site. Water charges to GPCL shall be borne by GACL. Water from sumps shall be pumped through already installed pipeline network and pumps to facilitate water flow for modules cleaning.</b> (iii) <b>In case water is not provided by GPCL due to non-availability of water in local canal, tankers may be arranged by vendor payment shall be made by BHEL as per point 3.</b> (iv) All the consumables for cleaning of modules such as cleaning brushes, mopping sticks etc. shall be arranged by vendor. (v) <b>In case of natural cleaning of solar modules by rains and cleaning not carried out, no payment will be done for that cycle within the month.</b> (vi) Three cycles of cleaning of entire solar modules has to be completed in a month by the vendor. In case, lesser quantity of solar modules are cleaned, proportionate payment will be made for quantity of solar modules cleaned up to last day of each month. (vii) Each solar module is of 2m x 1m size and 20 solar modules are mounted on each structure.	Months	103	32,365.38	33,33,634.42
2	Grass cutting - maintenance of plant without grass <b>(One cycle per month).</b>	<b>Minimum 1</b> labourers to be allocated for this activity.	Months	103	9,542.49	9,82,876.11
3	Deployment of Security persons for the entire plant in 3 shifts per day each of 8 hours with minimum 2 security persons in each shift. One Security person shall be deployed at main gate at all times. Other security person shall be patrolling the entire area.	(i) Securing approx. 60 acres of plant area. (ii) In case of theft, FIR to be lodged by O&M vendor. (iii) If theft incidents are due to negligence of O&M vendor such as absence of security, the loss recovery shall be done from vendor.	Man Months	618	10,019.61	61,92,119.50
4	Management of complete O & M activities by O&M incharge	<b>One engineer</b> (B.Tech in Electrical Engg.) with minimum 33 kV level working experience is to be appointed who will be the overall O&M incharge of the plant. Major responsibilities of O&M incharge : (i) Allotment of work to all the O&M staff and supervision of O&M works as per schedule approved by BHEL. (ii) Sending Daily, weekly and Monthly report to BHEL by mail. (iii) Interaction with customer / GETCO / SLDC / GPCL etc. (iv) Coordinating with sub-station upon grid failures / cable faults and implementing the needful steps to restore the plant to normal operation. (vi) Maintaining plant records and log books, stock register and reporting to BHEL. (vi) Trouble-shooting and Updation of SCADA system if required as instructed by BHEL. (vii) Theft incidents: immediate reporting to BHEL, filing FIRs at police stations on BHEL behalf, coordination for site inspection by insurance companies and clearance of insurance claims, logging of events (date, time) and maintaining records. (viii) Accidents: immediate reporting to BHEL, coordinating with hospitals, logging of events (data, time) and maintaining records.	Months	103	23,856.22	24,57,190.28

Sl No	Activity description	Scope of Work & Remarks	Unit	Qty	Unit rate excluding GST (Rs)	Amount excluding GST (Rs.)
5	Plant Operation works such as (i) Logging of DC, AC, grid parameters (current, voltage, power, energy) at PCUs, HT panels, 66KV switchyard, transformer temperatures, equipment tripping/ breakdown, grid outage as per BHEL formats. (ii) SCADA data station / HMI PC operations/ CCTV operation for daily monitoring of weather parameters, trend graphs and urgent reporting to BHEL in case of any problems / anomalies observed with any of the parameters, resolving communication issues between SCADA and other equipment, healthiness of all equipment	<b>Minimum 3</b> technicians (Diploma / ITI) to be allocated for this activity. The O&M works mentioned are indicative. All the activities required for O&M shall be carried out by technicians as instructed by BHEL. Monthly reports to be prepared and submitted by mail to BHEL for the various parameters including Earth resistance, String current, Energy exported etc. as per report formats finalized by BHEL. <b>Atleast one</b> technicians out of 3, shall be qualified for HT operations (33kV minimum). Certificate / license copy to be submitted to BHEL before commencement of O&M works. One technician to be posted in Night shift operation.	Months	103	34,352.95	35,38,354.00
6	Carrying out Preventive and Breakdown maintenance as per O&M schedule / OEM guidelines / maintenance manual such as a) Cleaning, tightness checks, lubrication and other maintenance of equipment -PCUs, HT panels, Inverter transformers, Auxiliary transformers, ACDB, FCBC, UPS, Battery banks, SMBs, SCADA, WMS, CCTV, Fire Alarm, ESE Lightning arresters, earthing, light fitting -indoor and outdoor etc. b) Replacement of Silica gel, gaskets, Rectification of Oil leakages in Inveretr & Auxillary transformers c) Repair/ replacement of failed 33KV cable inside plant and cable laid underground , replacement of failed 33 kV termination/ jointing kits. d) Trouble-shooting of solar array problems as DC earth fault, OFC/ communication cable faults, replacement of damaged PV modules, SMB components etc. e) Checking tightness of MMS and PV Modules (f) Monthly earth resistance measurement and recording value on the Earth chambers (g) Watering of earth pits	<b>(i) Minimum 2 technicians (Diploma/ ITI) and minimum 2 labourer to be allocated for this activity.</b> (ii) List of equipment mentioned is indicative. Maintenance of all the equipments installed in pllant is in vendor's scope. (iii) Periodic maintenance shall be preferably carried out during evening to avoid generation loss. (iv) Whenever a fault has occurred, the contractor has to attend to rectify the fault & the fault must be rectified within 48 hours from the time of occurrence of fault. <b>(v) Major spares such as complete equipment failures of CT, PT, LA, Breaker, Isolator, SM B, PCU, transformer, cables, HT termination and jointing kits etc. if any will be supplied by BHEL</b> <b>(vi) Minor spares and consumables such as M CBs, Fuses, peripheral and building Lights, fans, indication lamps, gaskets, silica gel, acid for battery, hardwares, lugs, glands, M C4 connectors, PCU dust filter, PEB room louver air filter, sanitary fittings etc. if required shall be supplied by vendor.</b> vii) In case of Maintenance activity / failure / damage / accident / replacement / repair required for any of the plant equipment such as Solar modules, HT panels, Inverter & Auxillary transformers etc. or for any other site related activities, unloading, erection, installation, charging, co-ordination with agencies involved, etc., shall be in O&M vendor's scope. Arrangement of Crane / hydra / JCB/ additional labour hiring / Ladder, etc., for arranging replacement of failed equipment shall also be in the scope of O&M vendor. (viii) All tools and tackles required for maintenance activities shall be arranged by O&M vendor.	Months	103	43,418.31	44,72,086.31

Sl No	Activity description	Scope of Work & Remarks	Unit	Qty	Unit rate excluding GST (Rs)	Amount excluding GST (Rs.)
7	General maintenance works such as Daily housekeeping activity for Inverter rooms and Control room including toilets, Garbage removal from solar array area, repair of plumbing works, underground water tanks, Sintex tanks, cleaning of sewerage lines, septic tanks, soak pits if required, minor civil repair works such as leakages, doors, windows, rolling shutters, ventilators, floor/ tiles/ wall cracks, cleaning of drains etc.	(i) <b>Minimum 1</b> labourers to be allocated for this activity. (ii) All the buildings - Main Control room and Inverter rooms to be mopped daily and surroundings to be kept clean. (iii) All toilets to be cleaned daily. (iv) All consumables required for this activity shall be in vendor's scope.	Months	103	10,178.65	10,48,401.19
8	Annual maintenance of all transformers with respect to BDV measurement, Oil filtering as required, tightness of cables, earthing and hardwares, replacement of gasket, silica gel breather, paint touchup, arresting oil leakages and oil topup of all transformers (66KV, 33KV and aux transformers), CT, PT and other related electrical works.	Through OEM / competent testing agencies as approved by BHEL. All required tools, tackles, testing and measuring instruments, Oil filtration kit, DG set etc. to be arranged by vendor.	Years	9	95,424.87	8,58,823.79
9	Annual testing and calibration of 33 kV HT panel equipment as VCBs, CTs, PTs, Numerical relays, electromechanical relays, MFMs etc.	Through OEM / competent testing agencies as approved by BHEL. All required tools, tackles, testing and measuring instruments, DG set etc. to be arranged by vendor.	Years	9	62,026.16	5,58,235.46
10	Checking and re-filling of Fire extinguishers and sand buckets as required.	All the fire extinguishers to be checked for healthiness and re-filling to be carried out as and when required.	Months	103	1,908.50	1,96,575.22
11	Coordination and liasoning with CEIG / GEDA for renewal of CEIG approval and other statutory bodies as applicable.	Vendor shall coordinate and liason with CEIG/ GEDA for renewal of complete plant approval including 33KV cable and . Official charges if any to CEIG / GEDA will be paid by BHEL in the form of DD / EFT.	Years	9	38,169.95	3,43,529.51
12	Seasonal tilting of SPV modules	Seasonal tilting of SPV modules as per seasonal tilting chart. All PV Modules installed shall be checked for tightness of bolts, damages / hot spots on any module. All tools and tackles, nut & bolts required shall be arranged by O&M vendor.	Half Years	17	1,25,795.49	21,38,523.34
		<b>Total Category A</b>				<b>2,61,20,349.13</b>

Sl No	Activity description	Scope of Work & Remarks	Unit	Qty	Unit rate excluding GST (Rs)	Amount excluding GST (Rs.)
		<b>Category B</b>				
1	Supply of water using tankers.	Water shall be supplied using tankers from external source in case water is not provided by GPCL.	Kilo Litres	4000	238.56	9,54,248.65
2	Supply of Motorized Grass cutting machines of reputed make with repair and maintenance for complete O&M period.	(i) Make shall be BOSCH / HONDA or equivalent. Approval shall be taken from BHEL before procurement. (ii) Vendor to supply 2 nos of Motorized Grass cutting machines. Repair and maintenance of grass cutting machines shall be in vendor's scope. (iii) Petrol/ Diesel/ electricity expenses shall be in vendor's scope for operation of the grass cutting machine. (iii) In case if grass is not grown and cutting is not carried out, no payment will be done for the month.	Nos	2	23,856.22	47,712.43
3	Maintenance and Servicing of Airconditioners, Refrigerator, Furniture, Water purifier, fans, grass cutting machines etc.	Complete maintenance and servicing of equipment as and when required to be carried out by vendor.	Months	103	954.25	98,287.61
4	Painting of all metal structures (non-galvanized), rolling shutters, switchyard and transformer yards fencing and gates including PEB (Pre-Engineered Building) material, all rusted components etc.	Painting of all metal structures shall be carried out once in every year.	Years	9	9,542.49	85,882.38
5	Maintenance of Roads and drains such as: I. Crack repairing of the road surface. II. Pot-holes over the top road surface to be rectify. III. Maintenance of shoulders for the rain cuts or damage due to some external reasons. IV. Before and after the monsoon season the storm water drainage shall be maintained & cleaned for smoother flow of storm water.	Maintenance of roads and drains shall be carried out once in every year.	Years	9	19,084.97	1,71,764.76
6	Re-carpeting of the road surface (approx. 1.5 KM)	Re-carpeting shall be carried out after 5 years.	AU	1	6,15,644.03	6,15,644.03
7	Supply and installation of RO water purifier of reputed make with storage capacity of min. 8 Litres in Control room for drinking water for O&M staff.	Make shall be KENT/ EUREKA FORBES/ BLUE STAR or equivalent. Approval shall be taken from BHEL before procurement.	No	1	23,856.22	23,856.22
8	Providing Landline Telephone connection in Control Room	Landline telephone connection to be taken in the name of GACL.	Months	103	477.12	49,143.81
9	Providing internet leased line connection of min. 1 MBPS speed including required hardware for 24 hours internet facility	Internet connection to be taken in the name of GACL.	Months	103	954.25	98,287.61
10	Calibration of Weather Monitoring Station equipment	Weather monitoring station equipment to be calibrated at IMD or OEM recommended labs as per calibration period of individual equipment as recommended by OEM.	Years	9	9,542.49	85,882.38
		<b>TOTAL Category B</b>				<b>22,30,709.87</b>
		<b>Total estimate value for Category A + Category B items</b>				<b>2,83,51,059.00</b>




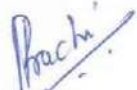
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Technical specification  
 for  
 Design, Supply, Installation, Commissioning of  
 15MW (AC) Solar Photovoltaic Grid-connected Power plant and  
 Operation and Maintenance for SPV plant side  
 at  
 Charanka Solar Park, Gujarat

Revision details:	Prepared  Varun Jain	Approved:  Prachi Rao	Date:  10.07.2017
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## 7.0 Operations and Maintenance

7.1	<b>Date of commencement of operations and maintenance</b> Zero date for O&M shall be the actual date on which the power plant is commissioned with synchronization of PCUs to grid / export of power for full 15MW (AC). O&M shall be for 10 years with scope of SPV portions on the solar plant end including solar array up to 33kV side of 16MVA transformer.
7.2	O&M personnel 1. Vendor shall deploy following minimum personnel: (a) Technical / administrative / office personnel <ul style="list-style-type: none"> <li>One technical-cum-administrative in-charge having graduation in electrical/ electronics engineering and experience with overall responsibility for complete plant operations. The incharge shall have competence to deftly handle technical and operational / crisis problems.</li> <li>Six working level staff with ITI / diploma level qualifications in engineering with competence for operating electrical/ electronics/ mechanical equipment, taking measurements, data logging / maintaining registers, preparation of reports in computer.</li> <li>Eight unskilled persons for regular house-keeping (cleaning / mopping etc) and water cleaning of SPV modules.</li> <li><b>Note:</b> At least one among the technical personnel shall essentially be a certified / licensed person for HT operations (33kV minimum). This is a mandatory requirement.</li> </ul> (b) Security personnel <ul style="list-style-type: none"> <li>Minimum 6 security guards with competence to handle tough situations and safeguard the plant from miscreants.</li> <li>Among these, two shall be deployed during night shift, two during morning shift and two during evening shift.</li> </ul>


	2. Vendor shall provide uniforms for the O&M staff.  3. Similarly, O&M personnel shall be provided with raincoats, toolsets, earthing rods, safety gloves, safety goggles, gumboots, helmets and all other personal protective equipment (PPE) that will be relevant to ensure human safety.  4. Names, qualification, work responsibility of personnel shall be listed on a display board within control room.  5. Attendance register shall be maintained for both the teams.
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	<p>6. Vendor shall ensure statutory requirements such as ESI, PF and labour license for their O&amp;M personnel posted at site.</p> <p>7. BHEL/GACL shall have right to disallow any O&amp;M employee, if found unfit to perform. BHEL instructions issued in writing shall be binding on vendor who shall replace the person.</p> <p>8. O&amp;M personnel at site shall conform to general regulations in force at site and to any special instructions from GACL administration.</p> <p>9. O&amp;M personnel at site shall be deemed to be aware of damages and risks incidental to conditions of ordnance factory (OFMK) land &amp; works from time to time and BHEL/GACL shall not be responsible for any injury to personnel arising there from.</p> <p>10. Training to O&amp;M personnel It is the absolute responsibility of vendor to ensure imparting of necessary training to their O&amp;M personnel to get them acquainted with the operations of various electrical and mechanical equipment of the power plant. For this purpose, vendor shall identify the O&amp;M personnel well in advance and involve them during installation and commissioning stages so that they become well versed with various functional aspects of the power plant.</p> <p>11. Availability of O&amp;M personnel at power plant (a) Vendor shall ensure that operating staff are present in the power plant during 7:30 AM – 6:30 PM every day. (b) Vendor shall ensure that certain minimum operating staff are present at the power plant even on festivals, public holidays and any other unique occasions so that the plant is run under competent supervision on all days.</p> <p>12. O&amp;M personnel shall, strictly, not use any part of the power plant for their personal / residential purposes. Their presence at the plant shall, strictly, be meant only for the purpose of operation and maintenance of plant.</p>
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	<p>Specification for design, supply, installation and commissioning of 15MW (AC) solar power plant and operation and maintenance for SPV plant side at Charanka Solar Park, Gujarat</p>	PS-439-1139
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7.3	<p>Responsibility of vendor during PG test</p> <p>Vendor shall, in addition to the O&amp;M activities (as per this specification), carry out the Performance Guarantee test (PG test) that commences on a date (as mutually decided by BHEL/GACL) after successful completion of initial acceptance test that is carried out for 7 continuous days and evaluated with reference to performance ratio (PR). PG test is the final acceptance test (conducted for a period of 30 days as decided by GACL within the O&amp;M period) to prove the performance of the power plant with reference to PR</p> <p>Vendor shall carry out the following activities during this period:</p> <ol style="list-style-type: none"> <li>1. O&amp;M activities as per this specification</li> <li>2. Monitoring of power plant parameters as per SCADA reports</li> <li>3. Reporting power plant parameters to BHEL/GACL on daily basis</li> </ol>
7.4	<p>O&amp;M operations – daily basis</p> <ol style="list-style-type: none"> <li>(1) Water cleaning of SPV modules</li> <li>(2) Inverter room / main control room cleaning – dry sweeping, wet mopping</li> <li>(3) Water wash cleaning of toilets, urinals</li> <li>(4) Gardening of landscaping areas: watering of plants, trimming of plants as applicable and necessary.</li> <li>(5) Logging of DC, AC, grid parameters (current, voltage, power, energy) at PCUs &amp; VCB panels, transformer temperatures, equipment tripping/ breakdown, grid outage etc as per BHEL formats.</li> <li>(6) SCADA data station / PC operations for daily monitoring of weather parameters, trend graphs and urgent reporting to BHEL/GACL in case of any problems / anomalies observed with any of the parameters.</li> <li>(7) Drinking water to be arranged for O&amp;M personnel at site.</li> </ol>
7.5	<p>O&amp;M activities – weekly basis</p> <ol style="list-style-type: none"> <li>(1) Removal of garbage from solar array field, switchyard, roads, drains, pathways, sand buckets; logging in registers with signatures of operating persons and in-charge.</li> <li>(2) Monitoring and logging of fire extinguisher levels / pressures as per BHEL formats</li> </ol>

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7.6	<p>O&amp;M activities – monthly basis</p> <ol style="list-style-type: none"> <li>(1) Inspection of fire extinguishers (weight, pressure indication, physical status etc) followed by refilling actions, if necessary, based on indications. Report to be submitted as per BHEL approved recording formats.</li> <li>(2) Earthing resistance measurements for solar array structures, control room equipment, switchyard equipment, lightning arrestors: measured values shall be recorded in registers and reported to BHEL as per BHEL approved recording formats.</li> <li>(3) Submission of values / status of plant parameters and events for the corresponding month, as below, as per BHEL approved formats: <ol style="list-style-type: none"> <li>a. Daily values of solar array strings (SMB parameters)</li> <li>b. Daily values of weather parameters (solar energy, wind speed, ambient temperature) c. Daily energy generation</li> <li>d. Events (with date, time) of faults / tripping / breakdown of equipment</li> <li>e. Events (with date, time) of grid outage</li> <li>f. Events (with date, time) of equipment damages, accidents and thefts</li> </ol> </li> </ol>
	<p>g. Activities of module cleaning</p> <ol style="list-style-type: none"> <li>(4) Monthly reports shall be submitted to BHEL for all the above data.</li> <li>(5) Energy generation / meter reading report to be prepared and submitted to the concerned department. Signatures from GACL representatives shall be obtained wherever required.</li> </ol>
7.7	<p>O&amp;M activities - quarterly basis</p> <ol style="list-style-type: none"> <li>(1) Cleaning of PCUs, LT panels, VCB panels, UPS panels etc to remove accumulated dust.</li> <li>(2) Monitoring and status review, followed by rectification/ calibration/ replenishment/ replacement actions as necessary and applicable for following: (a) Spare items of all electrical equipment (b) First aid box items - medicines and accessories (c) Safety gadgets (d) Tool kits and measuring instruments (e) Yard lights (f) Pumps, starters (g) Control room appliances: air conditioners, lights, fans, exhaust fans, switch boards etc</li> <li>(3) Pest control for control room (rats, snakes etc) – sprays, chemicals, medicines etc to be applied wherever required.</li> <li>(4) Submission of quarterly report on above activities to BHEL.</li> </ol>
7.8	<p>O&amp;M activities – half yearly basis</p> <ol style="list-style-type: none"> <li>(1) Cleaning of water storage tanks</li> <li>(2) Tilting of Module mounting structures at specified angles</li> </ol>

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7.9	<p>O&amp;M activities – yearly basis</p> <ol style="list-style-type: none"> <li>(1) BDV measurements for oil samples from all transformers and submission of report to BHEL/ GACL.</li> <li>(2) Filtration of oil to be arranged, if required, based on BDV measurement report.</li> <li>(3) Lubrication of moving contacts (VCBs etc) with appropriate grease etc</li> <li>(4) Cleaning of sewerage lines, septic tanks (if found necessary)</li> <li>(5) Painting of main gate, switchyard gate / fencing, earthing chambers, other steel structures within control room and switchyard if required based on conditions of rusting etc.</li> <li>(6) Checking tightness of hardware in solar array structures and tightening wherever required.</li> <li>(7) Checking tightness of power cable terminations in SPV modules (MC4), SMBs, electrical panels of control room and switchyard.</li> </ol>
7.10	<p>O&amp;M activities - as and when required (contextual basis)</p> <ol style="list-style-type: none"> <li>(1) Monitoring and operation of plant electrical equipment as and when required: <ol style="list-style-type: none"> <li>(a) VCB on/off: local operations from outdoor VCB panel and remote operations from SCADA system.</li> <li>(b) Settings of numerical relays in VCB panels: review and revision in consultation with BHEL. (c) ACB and MCCB on/off operations on LT side</li> <li>(d) PCU operations: emergency close, LCD displays (selection of settings, monitoring the DC/AC/event/fault status parameters), operation of duct fans</li> <li>(e) UPS panels and Battery bank operations</li> <li>(f) Booster pump operations to fill the water storage tanks</li> </ol> </li> </ol>