

**Central Mechanical Engineering Research Institute, Durgapur**  
Engineering Service Division

Name of work :- Annual Contract of Manpower service for Maintenance of Electrical Distribution system and associated works including operation of DG set at CSIR-CMERI Durgapur.

SubHead - I: CSIR-CMERI Colony Campus.

SubHead - II: CSIR-CMERI Institute Campus.

Item No	Item Description	Minimum Wages (Per Workers)		Remarks
		Skilled	Unskilled	
1	Rate of Minimum Wages per day			
2	Minimum wage per month - 26days			
3	Bonus (Minimum Bonus @ 8.33% of SI No.2) (Maximum amount payable Rs. 7000/-per year)			
4	<b>Total (SI No. 2+3)</b>			
5	PF @ 12% of SI. No. 2 per month			
6	ESI @ 1.75% of SI. No.2 per month			
7	<b>TAKE HOME NET PAY (SI no 4 – 5 – 6)</b>			
8	PF @ 13.61% o SI. No.2 above per month			
9	ESI @ 4.75% of SI. No.2 per month			
10	<b>Total : (SI No. 4 + 8 + 9) :</b>			
11	<b>Service Charge @ _____ (Inword) _____ % of SI. No. 10 per month</b>			<b>To be quoted by the Bidder</b>
12	Total: (SI No. 10+11) per month Say Rs.			
13	Total Quantity/Nos (Sub head I & II) of Skilled/Unskilled workers (One Year)	132 Each	24 Each	
14	Total: (SI No.12 X SI No.13) per month			
15	Service Tax @ 15% of SI no. 14			
16	<b>Grand Total SI No. (14 + 15) :</b>			

The Institute will make payment of Minimum wages as notified by Ministry of Labour, Govt. of India from time-to time and EPF,ESI, Bonus and applicable service tax at prescribed rates.

**The Bidders are requested to quote their service charge in percentage appeared at SI No.11 above.**

This percentage will remain firm/unchanged during the contract period. TDS as applicable will be deducted.

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**Central Mechanical Engineering Research Institute  
Engineering Services Unit**

**Scope of Work**

**Name of work: - Annual Contract of Manpower service for Maintenance of Electrical Distribution system and associated works including operation of DG set at CSIR-CMERI Durgapur.**

The total work is classified into Two Sub- Heads as mentioned below,

**Sub- Head - I CSIR-CMERI Colony Campus.**

**Sub- Head - II CSIR-CMERI Institute Campus.**

**Sub- Head - I CSIR-CMERI Colony Campus.**

CSIR-CMERI Colony (Old & New) Durgapur is the residential complex with high rise building (9<sup>th</sup> floor), having three phase & single phase Electrical Distribution (Overhead & Underground) Systems, Automatic Passenger Lifts, Water Pumps, DG Sets, Road/Security lighting system, Medical Center, Experimental Shed no- 5, Shallow Basin areas, Kendriya Vidyalaya, Free Primary School, Executive Hostel, VIP Guest House and most of all the Staff Quarter etc. For Annual General Maintenance of all Electrical and associated systems, CMERI desires to have the services from an Agency having expertise and experience in Electrical Maintenance and associated Service of Electrical work and The services are intended to keep the system healthy and safe conditions creating congenial environment in the both Colony premises.

The operation and General Maintenance of Electrical system, SQM and Service equipments Contractor should provide all skilled manpower. Electrician and operators DG set should be minimum ITI (electrician) **passed** or having **valid license** issued by the Director of Electricity Govt. of West Bengal, with electrical Maintenance working experience in the required field. The contractor should provide necessary electrical working tools/instrument as required in site as per direction of Engineer –incharge.

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Electrical Maintenance Service with Seven (7) nos Skilled man power for Operation, General, Rutine, Preventive Maintenance & check up Service of staff quarter, Electrical Equipments, Cable joint & Termination, Main switch, LT Circuit Breaker, HT fuse, jumper, Over Head & Under Ground line, service line and maintaining the proper loog book for DG Set and Energy Meter reading register, Fixing of different electrical accessories related to SQM (In Three shift including DG set operation). All the essential electrical fixing tools/measuring instrument etc are to be provide by the contractoras on required basis as per standard Engineering practice.

Total manpower required and hours of duty of them are as mentioned below: -

Sl. No.	Skilled Manpower of Electrical work & Service	Qty
1	Electrician/Were man /skilled work man - 6nos	6 AM to 2PM - 2 Nos 2 PM to 10PM - 2 Nos 8 AM to 5 PM - 1 No 10PM to 6 AM - 1 No Reliever - 1 no for maintain off day duty

Duty Roster for skilled workman on weekly basis likes as follows :-

SL NO	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Man-1	off	M	M	E	E	N	M
Man-2	M	off	M	M	N	E	E
Man-3	N	E	off	M	E	E	E
Man-4	E	M	E	off	M	M	N
Man-5	M	N	N	E	off	M	E
Man-6	E	E	E	N	M	off	M
Man-7	G	G	G	G	G	G	off

M-Morning Shift, E- Eveining shift, N- Night shift, G- general shift.

Duties of Electrician & DG set operators are briefly mentioned above but nature of shifting duties may be modified as per actual site requirement and as per instruction of maintenance-in-charge. **The works are to be carried out by firm in all the days throughout the year including Holidays.**

Beading firms may visit the site (CMERI Colony campus, Durgapur) access the nature as well as volume of work, before quoting their rates.

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Sub- Head - II CSIR-CMERI Institute Campus.

**1.0 INTRODUCTION:**

The scope of work for Annual Contract of Manpower service for **Day – to – Day and General Maintenance of HT – LT Electrical Distribution system and Operation of DG sets at CMERI Durgapur (Institute Campus)** includes the Preventive / Routine Maintenance of Transformers / Outdoor HT Gang operated Switches Indoor HT switchgears (OCBs – Oil immersed Switches), HT overhead line, Electrical Panels, Distribution Boards, Distribution systems, lighting system points, power points etc. which are required to be maintained on basis for trouble free electricity supply to CMERI. The contract of annual maintenance shall be initially for a period of one year. The period can be curtailed/extended at the discretion of the competent authority of CMERI.

**DESCRIPTION OF COMPLETE ELECTRICAL SYSTEM (INSTALLED AT CMERI) UNDER THE CONTRACT:**

**2.1 Metering & HT Panels:**

From two nos. feeder of 11 KV power comes to HT panel board having OCBs. Relays, PT & CTs, HT OH/UG line, TPGO Isolator.

**2.2 Transformers:**

From the HT panels there is five nos. out goings through HT cables to transformer (out door type) of 11KV/415V 500 KVA capacity with VLE Switch. Out going of transformer is taken to LT panel.

**2.3LT Panel System:**

Out going of five nos. transformer is taken to LT panels through MCCB/SFU from where it is distributed to many other sub- LT panels and distribution boards in complete building for further distribution to power points, light points, machines, pumps etc.

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## 2.4 Distribution Systems:

Supply is distributed to different floors of the building from the distribution boards installed at each floor and at many places from other floor to some other floor. And where it is being taken for utilization in individual rooms, different office buildings, Laboratories, Workshops, halls etc.

## 2.5 Operation of DG Sets:

(a) 500 KVA DG Set with panel – 1 No. (b) 40 KVA DG Set with AMF Panel – 2 Nos. (c) 20 KVA DG Set with AMF Panel – 1 No.

## 3.0. SCOPE OF WORK:

Maintenance of HT & LT Sub-station, Transformer, Switch gears and up to out going of Distribution system including last point of power and light installed at CMERI Durgapur.

### 1.0 Following electrical equipments are included in Maintenance Contract:

- a. 5 nos. of 11KV/415V 500 KVA Transformer and its protection system.
- b. Outgoing cable of metering equipment and HT cables up to Transformer, HT panels etc.
- c. Existing HT panel and OCB and its protection systems viz. relays, trip circuits etc.
- d. All HT/LT cables.
- e. All LT panels, Switch gears installed in LT panels, Measuring instruments, indications, bus bars, LT cables, Bus couplers and complete LT panel installed at different locations in the CMERI campus including checking of earth pits and taking corrective action for improvement of earth resistance if found improper
- f. All the distribution boards installed at each floor for power and lighting and for UPS etc. including all out going switches, MCBs, fuses, MCCBs from distribution boards.
- g. All the power points, light points etc available in the complete building.
- h. Street lights, security lights, starters of pumps/machines etc. and rectifying the faults in all except rewinding of motors etc.
- i. Operation of DG sets installed in the campus and daily check ups of DG sets with panel, Battery and battery charger etc.

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- j. Any other job related to electrical new or old assigned to the contractor are to be done by the contractor under the contract i.e. Internal and External electrification works etc.

**4.0 Following time schedule is to be followed for proper maintenance of the Systems of CMERI under the contract:**

**4.1 WORK TO BE CARRIED OUT DAILY:**

- a. Checking the Transformer and recording the observations made, any abnormality to be corrected immediately.
- b. Checking the HT panel and recording the observations made, any abnormality to be corrected immediately.
- c. Checking the LT panels and recording the observations made, any abnormality to be corrected immediately.
- d. Checking the Distribution System and recording the observations made, any abnormality to be corrected immediately.
- e. Any other job assigned by CSIR-CMERI related to electrical power/light etc.
- f. Keeping all the meters and indications of HT and LT panels intact.
- g. Cleaning of Transformer, HT panels, LT panels etc.
- h. Repairing etc. is to be done immediately if on inspection any defect is found.
- i. Attending the daily routine complaints of electrical lighting or power point received from the users. The contractor has to keep the records of the works carried out in a particular register/log books and to furnish the Monthly Report of the work carried out during that period /month. (Format of the monthly reports may be decided during execution of the work).
- j. Checking of loads on distribution system, sub panels, main panels etc. and making it uniform on phases as far as possible.
- k. Replacing of wiring if fault is noticed and it is required to change the wiring on the direction of engineers concerned.
- l. Operation of DG sets installed in the campus and daily check ups of DG sets with panel, Battery and battery charger etc.
- m. The completion Job card must be put in a file for a particular month and deposited to the in charge.

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- n. To do routine check of all Electrical system and DG set, campus Street lighting etc.
- o. To operate DG Sets, should know the starting & Stopping procedure of the system & keep all the records (time of operation hours of operation) in the respective log books.
- p. All the complaints given to the firm and subsequently attended by the firm must be recorded with complain no. Date, Time nature of complaints etc. in the Log Book.
- q. To make proper entry for consumption of electrical materials in the specific register with quantity of item number.
- r. For day-to-day Electrical maintenance all the Dismantling/replaced/scrap material are to be kept in our site office at specified location and must be entry in the dismantling register.

#### 4.2 WORK TO BE CARRIED OUT MONTHLY:

- a. All works to be carried out as carried out in daily schedule above.
- b. Checking and operating switch gear and trip circuit of HT panel for its proper functioning. Incase of defective/mal-functioning to be rectified immediately;
- c. Checking and operating switch gear and trip circuit of Transformer for its proper functioning. Incase of defective/mal-functioning to be rectified immediately;
- d. Checking and operating each switch gear and trip circuit of LT panels for their proper functioning. Incase of defective/mal-functioning to be rectified immediately;
- e. Checking the load on each phase of distribution system and ensuring that load is within limit and no MCB, switch, cable is over loaded.

#### 4.3 WORK TO BE CARRIED OUT ON QUARTERLY BASIS:

- a. All works to be carried out as carried out in monthly schedule above;
- b. Checking of current ,power factor, power and voltage at each switch in LT panels;
- c. Cleaning of Distribution Systems;
- d. Checking, repairing and cleaning of street lights, and security lights.

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**4.4 WORK TO BE CARRIED OUT IN HALF YEARLY SERVICING:**

- a. All jobs as mentioned in the quarterly work schedule above;
- b. Servicing of all OCBs if required;
- c. Cleaning of interior of HT & LT panel and tightening of all nuts and bolts including bus bar bolts, cable connections, switch connections etc;
- d. Recording the IR values of transformers;
- e. Checking the earth pits and earth resistance. In-case high, taking the corrective action to bring it up;
- f. Testing of earthing of each panel on HT and LT. In case improper need to be corrected;
- g. Cleaning of interior of bus duct and tightening all nuts and bolts including checking and correcting of earth strip.
- h. Checking and ensuring that all the distributions are properly earthed. In case some wiring is to be done up to distribution box for earthing, the same is to be carried out.

**4.5 WORKS TO BE CARRIED OUT YEARLY:**

- a. All the works to be carried out as carried out in half yearly schedule above.
- b. In yearly schedule any other work needed to be carried out for making all the system under the contract in proper functioning condition.
- c. After expiry of the contract the firm will have to hand over complete system along with all the accessories to the department in fully functional condition.

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**NOTE:**

- i). For the above maintenance any or all (routine, special) Tools, plants, Instruments etc. are to be arranged by the contractor at his own cost. Institute will not provide anything to the contractor. However, any repair etc. needed is to be carried out by the contractor under the contract. Material for replacement will be provided by CMERI.
- ii). The rates quoted will be deemed to have included all the necessary T and P/Labour required for satisfactory operation and Maintenance Contract of HT & LT Sub-station, Transformer, Switch gear and up to out going of Distribution system etc. as defined in scope of work.
- iii). The contractor has to keep the Job card records of the works carried out in a particular register/log books and to furnish the Monthly Report of the work carried out during that period /month. (Format of the monthly reports may be decided during execution of the work).
- iv) For requirement of Diesel for DG Sets, requisition to be given to DG maintenance in charge well in advance to ensure smooth operation of the DG set.
- vii) All the tenders are requested to visit the site / CMERI office campus before submitting the tender so that they can see the existing systems for any clarification.

**5.0 Deployment of Electrician/DG Set Operator and Helper to ensure smooth functioning of power system:**

- 5.1 For organizing and implementing the maintenance schedule it is suggested that, contractor shall depute **four** wireman Grade -1(skilled worker) /Skilled Operator and **two** unskilled worker/ Helper at site shifting basis **A – Shift (6:00 AM to 2:00 PM)**, **Gen – Shift (9:30 AM to 6:00 PM)** including half hour lunch break, **B – Shift (2:00 PM to 10:00 PM)**, **C – Shift (10:00 PM to 6:00 AM)** having thorough knowledge of HT & LT system and distribution system including knowledge of fault diagnosis and rectification of fault and having knowledge of DG Set Operation. The technical personnel deputed by the firm should have physically fit and sufficient experience of carrying out electrical works in HT (11 KV) & LT distribution systems multistoried office buildings, Laboratories, Industrial Sheds and open areas. The firm should have valid license to work up to 11 KV installations and should have proper knowledge of Electrical safety system.

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5.2 Day to day job shall be distributed and control by the contractor. The Firm shall be responsible for proper behavior of all the persons employed by them.

5.3 In case of break down immediate action must be taken to rectify the fault and restore the supply within reasonable time as considered by CMERI. Failing which penalty clause will be invoked.

#### 6.0 GENERAL MAINTENANCE:

Periodicity of various general operation and maintenance activities for each location:

i). Attend the sub station cleanliness and proper functioning of the equipment – Daily.

ii). Attend any leakage of oil from transformer – Daily.

iii). Maintain record of AMC as per daily schedule or as directed by the Engineer-in-Charge – Daily.

iv). Attend to cleaning of distribution areas daily.

#### 7.0 SPECIAL TERMS AND CONDITIONS (STC)

7.1 The contractor should have their maintenance people accessible either by person or by phone during or after office hours and if called for one to attend to work for repairing, rectification or servicing or as required for the smooth functioning of HT/LT distribution system, sub-station, transformers, etc.

7.2 Time for Annual Maintenance Contract will be one year from the date of effectiveness of the order for AMC.

7.3 In case failure of power from DSP OR (any agency who supply to CMERI), liasoning with the official of that agency is to be done by contractor for restoration of power. CMERI authority will put their signature on paper if any and as required by that agency as consumer.

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Signature of the Contractor with Date

## GENERAL TERMS AND CONDITIONS

### 1.0 CONTRACTOR'S OBLIGATIONS

- 1.1 That the contractor shall carefully and diligently perform the work assigned to him by the E/C.
- 1.2 That for performing the assigned work, the contractor shall deployed medically and physically fit persons. The contractor shall ensure that the persons are punctual and disciplined and remain vigilant while performing of their duties.
- 1.3 That the contractor shall submit details, such as names, parentage, residential address, age, etc. of the persons deployed by him in the premises of CSIR-CMERI for the purpose of proper identification of employees of the contractor deployed for the work. He shall issue identify cards bearing their photographs/identification, etc., and such employees shall display their identity cards at the time of entering or leaving the premises or while on duty.
- 1.4 That the contractor shall be required to maintain permanent attendance register/roll within the building premises which will be open for inspection and checking by the authorized E/C of CSIR-CMERI.
- 1.5 That the contractor shall be solely responsible for any violation of provisions of the labour laws or any other statutory provisions and shall further keep CSIR-CMERI indemnified from all acts of omission, fault breaches and/or claim, demand; loss; injury and expenses arising out from the non compliance of aforesaid statutory provisions. Contractor's failure to fulfill any of the obligations hereunder and/or under the said Acts rules/regulations and /or any by-laws or rules framed under or any of these, the CSIR-CMERI shall be entitled to recover any losses or expenses which it may have to suffer or incur on account of such claims, demands, loss or injury from the contractor's monthly payments.
- 1.6 That the contractor shall at his own cost, if required, take necessary insurance cover in respect of the aforesaid services rendered to CSIR-CMERI and shall comply with the statutory provisions of Contract Labour (Regulations & Abolition) Act, 1970 Employees State Insurance Act, Workman's Compensation Act, 1923; Payment of Wages Act 1936, The Employees Provident Fund (and Miscellaneous Provisions) Act, 1952; The payment of Bonus Act 1965; The Minimum Wages Act, 1948; Employer's Liability Act, 1938; Employment of Children Act, 1938 and/or any other Rules/regulations and/or Statutes that may be application to them.
- 1.7 That the contractor shall be liable for payment of wages and all other dues which they are entitled to receive under applicable labour laws and other statutory provisions.

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- 1.8 That the contractor shall make the payment of wages, etc. to the persons deployed under this contract in the presence of representative of CSIR-CMERI and shall on demand furnish copies of wages register/ muster roll/ online payment receipt etc. to the CSIR-CMERI for having paid all the dues to the persons deployed by him for work under the Agreement. This obligation is imposed on the contractor to ensure that he is fulfilling his commitments towards his employees so deployed under various Labour Laws having regard to the duties of CSIR-CMERI in this respect as per the provision of Contract Labour (Regulation and Abolition) Acts, 1970.
- 1.9 That the contractor shall deploy his persons in such a way that they get weekly rest. The working hours/leave for which the work taken from them shall not violate relevant provisions of Shops and Establishment Act.
- 1.10 The contractor will make payment to his workers on monthly basis. However, if any worker has not continued his service and has not worked for one full month, the payment will be made to him on per day basis for the number of days he has worked.
- 1.11 The contractor will pay bonus due to his workers at the time of expiry of the Contract, as per Govt. rules/laws, as applicable, failing which the said amount will be deducted from the security deposit.
- 1.12 The contractor shall take all reasonable precautions to prevent any unlawful riot or disorderly conduct or acts of his employees deployed and will also ensure preservation of peace and protection of persons and property of CSIR-CMERI.
- 1.13 That the contractor shall submit the proof of having deposited the amount ESIC and EPF contributions towards all the persons deployed by him at CSIR-CMERI in their respective names before submitting the bill for the subsequent month. In case the contractor fails to do so, the amount towards ESI and EPF contributions will be withheld till the submission of required documents.
- 1.14 The contractor shall remove all workers deployed by him on termination of the contract or on expiry of the contract from the premises of the CSIR-CMERI.
- 1.15 The security money deposited shall be liable to be forfeited or appropriated in the even of unsatisfactory performance of the contractor and/or loss/damage, if any, sustained by CSIR-CMERI on account of the failure or negligence of the workers deployed by him or in the event of breach of agreement by the contractor.
- 1.16 The contractor shall further keep the CSIR-CMERI indemnified against any loss to its property and assets. The CSIR-CMERI shall have further right to adjust and / or deduct any of the amounts as aforesaid from the payments due to the Contractor under this contract.

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## 2.0 CSIR-CMERI'S OBLIGATIONS

- 2.1 That in consideration of the services rendered by the contractor as stated above, he shall be paid on monthly/bymonthly basis. In this regard, the Contractor will raise his bill which will be duly certified by the E/C of CSIR-CMERI. CSIR-CMERI will process the bill so raised and make the payment to the Contractor. Contractor will pay the wages to his manpower deployed in CSIR-CMERI latest by 7<sup>th</sup> day of each month. The contractor would be required to ensure the payment of its workers by 7<sup>th</sup> of every month and there should be no linkage between this payment and settlement of the contractor's bill by CSIR-CMERI.
- 2.2 That the aforesaid billed amount (subject to certification and submission of related documents etc.) has been agreed to be paid to the contractor by CSIR-CMERI.

## 3.0 PENALTIES/LIABLITIES

- 3.1 That the Contractor shall be responsible for faithful compliance of the terms and conditions of this agreement. In the event of any breach of the agreement (i) may be terminated, (ii) the security deposit may be forfeited, and (iii) the work may be got done from any other agency at Contractor's risk and cost.
- 3.2 That if the Contractor violates any of the terms and conditions of this agreement or commits any default or if his services are not found to the entire satisfaction of E/C of CSIR-CMERI, a penalty, leading to a deduction of up to a maximum of 10% of the total amount of the bill for a particular month, will be leaved.

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Signature of the Contractor with Date