

DELHI DEVELOPMENT AUTHORITY
ELECTRICAL DIVISION NO.11
VIKAS SADAN: INA: NEW DELHI: 23.

NIT NO.09,33 & 44 /EE/El. Division No.11/DDA/08-09

NOTICE INVITING TENDER

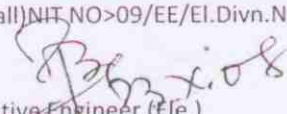
Sealed item rate tenders are invited for the following works on behalf of DDA from Firms enlisted/approved for similar nature of works in appropriate class and specialized firms (submit documents), who fulfill the following criteria :-

1. The annual financial turn over(gross) in one of the proceedings three financial years shall not be less than 100% of the estimated cost (duly audited by Chartered Accountant on annualized basis, depending upon the time allowed for completion i.e. total estimated value divided by time of completion.)
2. A certificate of satisfactory completion of at least two works of similar nature /class costing not less than 50% of the estimated cost (gross) in Central /State Govt. Deptt. Or in Public Sector Undertaking/Govt. Autonomous Bodies during the last five years (to be issued by the organization under whom the works had been executed) shall be forwarded by the intending tenders at the time of making application for issue of tender documents.

Tender documents can be had on any working day between 10.00 AM to 3.00 PM on payment of the amount mentioned against the work (non refundable) on production of valid Enlistment Registration Certificate and valid Registration with Works Contract Cell of Sales Tax Deptt. Of NTC and Tax Clearance Certificate issued by Works Contract Cell in Form XI at Divisional Office Ex.Engineer,Elect.Divin.No.11, 1st Floor, Press Building Vikas Sadan, INA, New Delhi. Earnest Money shall be submitted along with tender documents in the form of CDR/Demand Draft of Scheduled Bank Guaranteed by the Reserve Bank of India in favour of concerned Accounts Officer/CAU(SEZ)/DDA.

Tender can be submitted on specified date upto 3.00 PM which shall be opened on the same day at 3.30 PM at Ground Floor, Vikas Minar IP Estate, New Delhi by the undersigned in the presence of the contractors /their authorized representatives .

S.No.	Name of Works	Estt.cost Earnest Money	Cost of Tender Time allowed	Last dt. of sale Dt.of opening
1.	M/o Completed Scheme finishing Furnishing Vikas Sadan SH: Annual Operation and maintenance of all Equipment of sub. Station and D.G. Set.(NIT No.36/EE/ED-11/08-09)	Rs.7,83,172/- Rs.15,663/-	Rs.500/- 12 Months	31.10.08 04.11.08
2.	M/o Scheme under Nazul A/C II(SEZ) SH: Annual operation and maintenance of sub. Station and D.G. set at Millennium Park)(NIT No.44/EE/ED-11/08-09.	Rs.2,71,460/- Rs.5429/-	Rs.500/- 12 Months	31.10.08 04.11.08
3.	M/o Completed Scheme finishing Furnishing Vikas Sadan SH: Providing and fixing of scale guard In the existing 3x40TR Capacity Central AC Plant and 2x7.5 TR package unit at Vikas Sadan. (Re Call)NIT NO>09/EE/El.Divn.NO.08-09	Rs.4,65,510/- Rs.9,310/-	Rs.500/- Two months	31.10.08 04.11.08


Executive Engineer (Ele.)
ELECT.Divn.NO.11/DDA

Please note that Schedule of Quantity along with terms and conditions also available on DDA Web site

2/-

No.F.5 (Misc.)/EE/El.Div. No.11/DDA/08-09/

1924

dated

23-10-08

Copy to:-

1. Chief Engineer(Elect.), DDA,
2. Suptdg. Engineer (Elect.) CWG.Circle-2, DDA.
3. Suptdg. Engineer/Quality Control Cell, DDA.
4. Director System, DDA, with the request to put on DDA "Websit.
5. Finance Officer, to Chief Engineer9Elect.0, DDA
6. Executive Engineer/Western Division No. 5,Vikas Minar, DDA
7. Executive Engineer 9Elect.) Div. No. 1,3,4,5,6,7,8,9,10 &12/DDA.
8. Accounts Officer, CAU/SEZ/DDA.
9. Asstt. Engineer (Elect.)1,2,3,4 & AE (P)Dv. No.11/DDA.
10. Asstt. Accounts Officer, Elect. Div. No. 11 .DDA.
11. Head Clerk, Elect. Div. No.11 /DDA.
12. The Association of Electrical Contractor (Regd.) Chamber No.103,Laxmi Complex,
B-6, Subhash Chowk, Laxmi Nagar, Delhi
13. DDA Contractor Association,. E-18, Vikas Kutteer New Delhi.
14. Secretary, Contractor Association. Block-11, 946, Kirti Nagar, Ware Housing Scheme, New Delhi.
15. DDA Contractor Welfare Association. Room No. 12, Barrack No.1, Vikas Kutteer, New Delhi.
16. N.I.T. Copy.
17. Notice Board.

EXECUTIVE ENGINEER (E)
ELECT.DIVN.NO.11/DDA
NEW DELHI.

SCHEDULE OF WORK

EC R₀ = 7,83,172/-

Name of work: - M/O completed scheme finishing & furnishing vikas sadan.
(SH: Annual operation & maintenance of all equipments of sub-station and D.G. sets).

S.NO.	DESCRIPTION OF ITEM	QTY.	UNIT	RATE	AMOUNT
1.	Maintenance and operation of 11/0.433 kv electric substation, DG sets round the clock as per terms and conditions and list of installation attached.				
	a) HT 4 panel board -				
	b) 1000 KVA transformer-				
	c) LT panel(normal & emergency)-				
	d) Capacitor bank panel-				
	e) DG sets with AMF panel 250 kva-				
	f) DG sets with control panel 160 KVA-				
	g) Change over switch in substation-				

1	2	3	4	5	6
2	Maintenance of following parts of HT/LT panels and transformer etc.				
	a. Dehydration and filtration of transformer oil of transformers, OCBs i/c testing etc. as reqd.	2600 Ltrs	P/ltr.		
	b. Supplying of transformer oil for top-up up to reqd. level etc. as reqd.	100 Ltrs.	P/ltr.		
	c. Servicing of 2000Amp ACB i/c drawing out, checking and rectify of the fault, cleaning of male/female connection, checking lose connections testing, commissioning etc. Complete as reqd.	3 Jobs.	P/Job.		
	d. Servicing of 2000Amp bus coupler i/c drawing out, checking and rectify of the fault, cleaning of male/female connection, checking lose connections testing, commissioning etc. Complete as reqd.	3 jobs.	P/Job.		
	e. Testing, calibration of relays of HT & LT panel's i/c internal connection & setting etc. complete as reqd.	7jobs.	P/Job.		

1	2	3	4	5	6
3.	Supplying and replacement of following parts/ item for HT panel i/c connection, testing complete as reqd.				
	a. Volt meter (0-12KV) in 144mm dial square.	3 Nos.	Each		
	b. Amp meter(0-200A)in 144mm dial square	3 nos.	Each		
	c. Selector switch (for volt meter & amp meter)	6 Nos.	Each		
	d. Pilot lamp (LED type) single module 225mm,440V	3 nos.	Each		
	e. Indicator lamps for 11KV including connection	3 Nos.	Each		
	f. Cable end kit.	1 Job.	P/job.		

1	2	3	4	5	6
4.	Supplying and replacement of following parts/ item for LT panel, connection, testing complete as reqd.				
	a. Volt meter (0-500V) in 144mm dial square.	2 Nos.	Each		
	b. Amp meter(0-200A/400A) in 144mm dial square	2 Nos.	Each		
	c. Selector switch (for volt meter & amp meter)	4 Nos.	Each		
	d. Indicating lamp LED pilot 225mm dia 240V in red, yellow, blue color.	3 Nos.	Each		
	e. Handle lock fixing of hard steal for LT panel/ main switch	6 Nos.	Each		

1	2	3	4	5	6
5.	Servicing of following rating D.G. set i/c replacement of oil filter, air filter, engine oil etc. Complete as required. a) 250 KVA D.G. set. b) 160 KVA D.G. set.	2 Jobs 1 Job.	P/Job. P/job.		
6.	Supply and installation of 12 V, 25 plates, 180 AH of approved make battery i/c initial charging connection etc. complete as required.	2 Job.	P/job		

EXECUTIVE ENGINEER
ELECTRICAL DIVISION NO.11

SPECIAL CONDITION

The following special condition shall be read in conjunction with conditions indicated in standard "GENERAL CONDITION OF CONTRACT" for central P.W.D works-1998 forms. In the event of any discrepancy between these forms and conditions hereunder, the later\shall prevail.

1. The work shall be carried out as per CPWD general specifications for electrical works (part-IV-substation) as amended up to date.
2. As the staff engaged by the contractor shall be his employees and shall wear uniform while on work. The uniform shall have the badge indicating their name. If it is found missing at any occasion a recovery at Rs. 200/- (Rs. Two hundred only) per occasion shall be made from the bills of the contractor.
3. All the materials, what-so-ever, to be used/supplied/provided by the contractor on the work shall be of standard and approved make, quality shall be got approved by the contractor from the department before its use on the work. If it is not followed, no payments shall be made for any unapproved or rejected materials and all such materials shall be removed from the site of work immediately by the contractor at his own cost.
4. The staff shall always remain available at site round the clock. If any staff of the contractor is found missing/absent from the work place at any time during the period of his shift/duty a recovery shall be made at the rate of Rs. 1000/- (One thousand only) per occasion.
5. The contractor shall have to arrange, at his own cost, all types of tools and plants etc. as required to carryout the complete work. No. T&P shall be issued to the contractor by the department.

6. The contract can be terminated by the Engineer-in-charge at any time without assigning any reasons and without any compensation, if any.
7. The contractor shall arrange the log books suitable for sub-station and D.G. sets at his own cost and maintain the log books in a manner as approved by the Engineer-in-charge.
8. The contractor shall be fully responsible for any damage caused to building, machineries equipments, which are properties of the department by any of his staff and shall be bound to make good such damages forthwith failing which the Engineer-in-charge shall get the damage rectified/replaced at the contractor's risk and cost and the amount recovered from the contractor's dues.
9. The contractor shall be responsible for the general cleanliness of DG sets and sub-station its various accessories, tank and sub-station room i/c transformer and HT rooms inside and near outside and its surroundings at all times. All the materials needed for it like broom, vim, dhoti, soap, etc. shall be arranged by the contractor at his own cost. If the cleaning is not found satisfactory at any time, a recovery of Rs 200/- (Rs. Two hundred only) per occasion noticed shall be made from the bills of the contractor.
10. Minimum staff to be deployed by the contractor shall be
 - Skilled staff (wireman cum DG set operator)-3No. (One in each shift).
 - Unskilled staff (khalasi)-3No. (One in each shift).
 - Electrician -2 No. in two shifts. (One in one shift i.e. 6am to 2pm & 2pm to 10pm).
 - Safai karamchari for $\frac{1}{4}$ day daily quantity of staff shall be altered according to requirement at site for which nothing shall be paid.

11. The payment shall be made to the contractor quarterly. However it may be delayed due to any reasons like non-availability of funds, L.O.C. and other unforeseen reasons, the contractor shall not claim anything extra in such contingencies but shall make regular and timely payment to his workers deployed for the work.
12. The department shall not be made party to any legal issue entered into by the contractor during the period of this contract.
13. The contractor shall provide first Aid box for his staff at site within 7 days of start of work failing which the Engineer-in-charge shall do the needful and recover the expenses from dues of the contractor.
14. The work shall be done by well-qualified and experienced staff of the contractor and the contractor shall ensure that all the persons executing the work have the valid electrical licenses, where-ever applicable. Consequences arising due to the default of contractor to comply with the above condition would be contractor's responsibility. The photocopies of requisite license of supervisor and wireman with photo to be submitted to divn. Office within three days of issue of acceptance letter.
15. The rates quoted shall be inclusive of all type of local/central/states etc. taxes and duties etc. and nothing extra shall be paid for increase/decrease of these taxes and duties etc. during the currency of the contract.
16. The contractor shall issue the identity cards to all their staff engaged on the work and all such staff should produce it as and when asked by the security/authority or the Engineer-in-charge or its authorized representatives.

17. In case of any disobedience by the staff of the contractor with the authorities/ engineer-in-charge and his authorized representative, the contractor shall be responsible fully for the such act and consequences and such shall be removed from the site immediately.
18. The number of the equipments for operations and routine maintenance of sub-station may be increased/ decreased as per the site requirement by the Engineer-in-charge.
19. The contractor shall be fully responsible for the safety and security of his all staff/ employed on the work under this contract.
20. The contractor has to take over the complete inventory before starting the works as per Annexure-"C" and should handover the same in good condition after termination of contract. If any discrepancy is found, the contractor has to make good at his own cost otherwise recovery will be made from the contractor's bill. The decision of Engineer-in-charge will be final and binding on contractor.
21. Whenever any major defects occur in the system, the firm will inform immediately to department for taking appropriate action.
22. For holidays/Sundays no extra payment will be made, it is contractor's responsibility to allow weekly off or holiday to workers. (But the sub-station must be manned round the clock).

The scope of this contract also includes:-

A. Sub-station along with equipments

1. Deputing necessary trained staff to operate 3x1000 KVA sub station round the clock i/c Sundays and holidays(in three shift).
2. Maintaining and up keep of every associated equipment and hardware in proper functional condition.

3. Recording all necessary operating parameters and tripping of relays of LT/ OCBs/ ACBs and temperature of gear oil which requires immediate attention of the department on due time.
4. Bringing to the notice of the department any defect/malfunctioning of any associated equipment or switch gear which requires immediate attention of the department.
5. Keeping proper watch and ward of equipment and machinery installed in substation premises.
6. Servicing and up keep of switch gears, and L.T OCBs/ACBs relays, transformers and associated equipments, etc. in accordance with the maintenance routines as per Annex 'A'.
7. Making good all the losses/ damages to the equipment or systems if any as a result of negligence or default of operating staff.
8. Informing the department well in advance about the requirement of any spares, consumable items necessary for satisfactory operation of the sub-station.
9. Replacement of the fuses spares or switches gear, etc. as supplied by the department.
10. Recording of the maintenance activities in a prescribed manner.
11. Testing and recording of transformer oil as required.

B. D.G. set & equipments

1. The scope of this contract also includes:-
 - a) General maintenance of storage batteries with materials like distilled water, acids, battery terminals leads greasing of terminals etc.
 - b) Periodical cleaning of radiators, water fillings etc.
 - c) Filter's cleaning, their replacements as per the manufacturer's recommendations and general standard Engineering practices.
 - d) Checking the electrical wirings, contactors, starters, switches, etc. regularly and recording the outcome in log book.
 - e) Maintenance schedule as per Annexure 'B' shall be followed.
 - f) Diesel consumption check periodically in presence of Engineer-in-charge.

2. The contractor shall arrange the log books of DG set at his own cost and maintain the log books in a manner as approved by the Engineer-in charge.
3. The contractor shall be responsible for supplying the uninterrupted electric supply i/c operation of change over switch etc.
4. The DG sets shall always be kept operational and ready to start mode at all times for taking load in case of mains failure. If it is not done, suitable action shall be initiated against the contractor.
5. The high speed diesel oil for DG sets shall be supplied by the department free of cost at site, as and when required. It shall be filled in by the contractor in the service tanks and its accounts should; be maintained in the log books of each D.G sets.
6. Each DG set shall be test run for minimum of ten minutes daily or as decided by the Engineer-in-charge and the readings shall be entered in the log books. Each DG set will have run on load even without mains failure as per the directions of the Engineer-in-charge or his authorized representatives.
7. The contractor shall be responsible for the safe custody of all DG set/sub-station equipments such as portable firefighting equipments, fans fittings, generators, all panels earthing pits cables etc. the contractor shall be responsible for all thefts, pilferage, damages etc. and such materials/ work shall be made good free of cost. Otherwise suitable recovery shall be made from the bills of the contractor.

ANNEXURE-A
MAINTENANCE ROUTINE

(Electric sub-station including L.T. panels and associated switch gears, etc).

A DAILY CHECK

1. Reading and recording of L.T. voltage, load transformer temperature, etc. as prescribed, every hour.
2. Check of oil leakages from conservator, transformer take remedial measures.
3. Checking and recording oil levels in the conservators of transformer and ensure that it is within the prescribed level.
4. Check all temperature which should not exceed 40c to 46c above ambient. Arrangement to be made to keep the temperature within the limits. Checks load on transformer and reduce load in case of overloading. Abnormal rise in the temperature should be brought to the notice of Engineer-in-charge immediately.
5. Check colour of silica gel in the breather. The colour should remain blue. If it changes, the silica gel should be removed and retrieved in sun. if the colour does not change it should be replaced.
6. Check L.T. cables and boxes for overheating.
7. Cleaning the L.T. panels with damp cloth. Maintaining the transformer room. L.T. panel room clean and ventilated.
8. Check the bouchoiz relay for accumulation of gas. (if should be released immediately and check for overheating of transformer).
9. All trippings of relay OCBs ACBs blowing of HRC fuses shall be recorded in log book. Reasons for fault to be found and duly recorded.
10. Check battery solution and top up with distilled water or electrolyte as necessary.

B. MONTHLY CHECKS

1. Clean the bus bar chamber, L.T. switch gear with electric blower/compressed air.
2. Check oil level in OCB's top up if necessary.
3. Check incoming and outgoing cable terminations for overheating/ sparking/ pitting.
4. Check earth strip terminations with the body of all L.T. switch gear wherever it exists.
5. Check neutral earth connections of transformers for looseness.
6. Check battery charger and water density etc. change of necessary.

C. SIX MONTHLY CHECKS

1. Check earth resistance (if should not be more than 5 ohms in any case).
2. Check insulation resistance.
3. Check oil for dielectric strength (the result should not be less than 3 times normal working voaltage).
4. Check fire extinguishers and other fire fighting equipments for normal working in sub-station.

NOTE:-

The above check shall be carried out preferably in the month of march and September.

D. YEARLY CHECKS

1. The oil level in transformer/OCBs shall be topped up if required.
2. All relay including over current and earth fault relays in all equipments shall be cleaned and checked for recalibration. The contractor will inform the engineer-in-charge immediately.
3. All ACBs OCBs pr L.T. shall be cleaned. The contacts shall be checked for any pitting etc. and if found defective the contractor will inform the department.
4. Bouchoiz relay shall be tested for normal working. The tripping of transformer shall be tested along with alarm circuits.
5. The battery circuits and the battery shall be checked. The battery charger shall also be cleaned and checked for proper functioning.
6. Check all ampere meters, volt meters, selector switches etc for proper functioning. Repair and replace if necessary.
7. Check the proper functioning of the tap changers on the transformer in off load position and record the reading obtained. Intimate the department if any discrepancy is noticed.
8. L.T./OCB contacts shall be cleaned and checked appropriate/approved grade of grease shall be applied.
9. The explosion vent of the transformer shall be checked.
10. The rollers of the transformer should be checked and greased for proper rolling.

ANNEXURE - B

MAINTAINANCE SCHEDULE FOR D.G. SET (AS PER MANUFACTURERS RECOMMENDATIONS)

A. DAILY CHECK

Lubricating system

1. Check for engine oil leak.
2. Check engine oil level.
3. Check hydraulic governor level.

Cooling system

4. Check for water leak.
5. Check for radiator air restriction.
6. Check hose and connection.
7. Check coolant level.
8. Check belt condition and tension.

Fuel system

9. Check for fuel leak.
10. Check sediment from tank and drain.....if required.

Air-intake system

11. Check for air leak.
12. Check air cleaner restriction.

Exhaust system

13. Check for exhaust leak.

Engine related

14. Check for unusual vibration.

Generator and switch gears

15. Check for air inlet and outlet for restriction.
16. Check windings and electrical connection.
17. Check power distribution wiring and connection.

B. CHECK EVERY SIX MONTH/250 HOURS

Cooling system

1. Check fan hub, drive pulley and water pump.
2. Check antifreeze and concentration of coolant.

Air intake system

3. Check piping and connection.

Fuel system

4. Check governor linkage.
5. Check fuel line and connection.

Battery charging system

6. Check battery charging system.

C. CHANGE EVERY SIX MONTH/250 HOURS

Lubricating system

1. Change full flow filter, by pass filter, engine oil and hydraulic governor oil.

Cooling system

2. Change water filter/clean water reperator, cooling system.

Fuel system

3. Change fuel filter/clean float tank breather.

Air-intake system

4. Change air cleaner element/ clean crank case breather.

Engine-related

5. Grease fan pillow block bearings/bearing.
6. Clean D.G. set.

NOTE: - Material required for replacement shall be supplied by the department.

ANNEXURE -C

INVENTORY

- | | |
|---|---------|
| 1. 400A H.T. Panel (4 panel board) | 1 No |
| 2. 1000 KVA Transformer | 3 Nos. |
| 3. L.T panel | 3 Nos. |
| 4. Emergency panel | 3 No. |
| 5. 250 KVA rating Diesel generator with alternator
Suitable for 250 KVA D.G set complete with following items. | 2 Nos. |
| a. AMF panel complete with different switches etc. | 2 Nos. |
| b. Diesel fuel tank 500 lt. capacity | 4 Nos. |
| c. 12 v, 25 plate battery | 4 sets |
| d. Copper plate earthing | |
| 6. 160 KVA rating diesel generator with alternator
Suitable for 160 KVA DG set complete with following items | 1 No. |
| a. Control panel | 1 No. |
| b. 12 V, 25 plate battery | 2 Nos. |
| c. Diesel fuel tank 500 L capacity | 1 No. |
| d. Copper plate earthing | 2 sets |
| 7. Ceiling fan (1400 mm) | 5 Nos. |
| 8. Tube light fitting | 25 Nos. |
| 9. Exhaust fans | 9 Nos. |
| 10. Emergency light | 1 No. |
| 11. Change over switch | |
| 4 No. | |
| 12. Copper plate earthing (transformers) | |
| 8 sets | |

EXECUTIE ENGINEER
ELECTRICAL DIVISION NO.11

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Governing specification

The following make of material shall be used at site.

<u>S.No.</u>	<u>Name of item</u>	<u>Make</u>
1.	Volt meter, Amp, Meter	A.E., /Havel's / L&T
2.	Lamp, indicator	LED type
3.	Selector switch	Kaycee, AE
4.	12 V Battery	Exide / Panasonic / Okaya <i>Okaya</i>

(87) A

SCHEDULE OF WORKEUR = 465510/-NAME OF WORK:-

M/o Completed Scheme Finishing & Furnishing Vikas Sadan (SH: P/F of Scale Guard in the existing 3X40 TR central A.C. Plant and 2X75 TR package unit at Vikas Sadan).

S.NO. Description of items

Qty.

Unit

Rate

Amt.

1. Supplying, installation, testing & Commissioning of on line

Non-chemical scale preventing equipment/(Scale Guard) direct in the existing 4" dia main condensor header water pipe line of 40 TR capacity central A.C. Plant as per specifications attached i/c cutting & welding of existing condensor pipe line. Supplying & fixing reducer and heavy duty flanges with suitable gaskets, nuts, bolts, etc. Suitable for A/C plant & capacity except flow Rate 420 LPM to 765 LPM.

03 sets. Each

2. Supplying, Installation, testing & commissioning of on line

non-chemical scale preventing equipment/scale Guard direct in the existing 2" dia main condensor header water pipe line of 7.5 TR capacity package unit as per specifications attached i/c cutting, welding of existing condensor pipe line. Supplying & fixing reducer and heavy duty flanges with suitable gaskets, nuts, bolts, washers etc. suitable for package unit of 7.5 TR flow Rate of 80 LPM to 125 LPM.

02 sets Each.

TECHNICAL TERMS AND CONDITIONS

- 1) Non-chemical water treatment system should prevent the formation of hard scale in cooling circuits of air conditioning equipment.
- 2) The unit should be on line non-chemical type scale preventer.
- 3) It should with a combination of Absorption & Tubolence.
- 4) The inner core should be able to convert the hardness salts into colodial particles.
- 5) The outer casing should be of stainless steel of Grade 304.
- 6) The unit should not require electricity or any other source of energy.
- 7) The unit should not have any recurring, operating and maintenance cost
- 8) The size of the unit shall be determined based on the water quality and water flow rates.
- 9) The unit shall be installed in the condenser line after the pump.
- 10) The system should work satisfactorily in water hardness up to 2000 ppm.
- 11) The firm should have method of checking the performance with help of latest technology.
- 12) SCALE GUARD should be backed by a 5 year replacement warranty in case the equipment fails to operate in the conditions in which it is installed.
- 13) Company should be an ISO 9001-2000 of manufacturing scale guard.
- 14) The firm/contractor should submit the necessary operation & maintained. literature/manual etc. along the tender
- 15) The firm should submit a test report of both raw/treated water.
- 16) The agency shall stand guarantee for a period of one year from the date of completion against faulty material and bad workmanship in case of any defects observed during guarantee period the material/work shall be replaced/rectified free of cost within reasonable time.
- 17) All the material to be used for the work shall be got approved before execution of the job from the Engineer-in-charge.

GENERAL TERMS AND CONDITIONS

- 1) The work shall be carried out as per CPWD specifications amended upto date.
- 2) The firm/contractor should visit the site of work & see quantum of work & technical requirement for above mentioned work involved before quoting the rates.
- 3) Any damage done to the existing system during the execution of work shall be made good within the quoted rates.
- 4) The rates quoted shall be firm and inclusive of all taxes/ cartage etc. and nothing extra shall be paid this account.
- 5) NO T & P shall be supplied by the department for this work.
- 6) Time allowed to carryout the work shall be two months.
- 7) Successful tenderer shall have completed the similar works of similar value of atleast two works for quoting these tenders.

EXECUTIVE ENGINEER
ELECTRICAL DIVISION NO.11

SCHEDULE OF WORK

(87) A

EAB-27/460/-

Name of work: M/O Various scheme under N/A-II(SEZ) (SH: Annual operation and maintenance of sub. station and D.G. set at Millennium park)

EAB-

S.No.	Description of item	Qty	Rate	Unit	Amt.
1.	Running operation and maintenance of 11 KV substation, 70 KVA, D.G. set along with the underground cable H.T., L.T. panel and a their accessories thereon etc. as reqd.	12 Months		Per month	
2.	Supply and fixing of following rating switch disconnect or fuse unit on the existing L.T. panel connection testing etc. as reqd. a) 125 Amp b) 63 Amp.	1 No. 1 No.		Each Each	
3.	Supply and replacement of following capacity HRC fuse (Din type) a) 125 Amp b) 63 Amp.	6 Nos. 6 Nos.		Each Each	
4.	Complete servicing and over-hauling of 11KV H.T. panel i/c checking of joints, throughout cleaning the panel by air blower calibration and testing of all relays and checking rubbing of all protection relays, maggering i/c testing of the complete panel board overhauling of OCB i/c servicing of meter by apparatus of P.T. C.Ts with topping of oil etc complete as reqd	1 job		Job	
5.	Servicing, checking, testing of 400 KVA 11/0.433 KV transformer i/c dehydration of transformer oil, testing of buckle relay checking of all joint and set right the same, maggering testing, replacement of all defective parts i/c topping of transformer oil etc. as reqd.	1 job		Job	
6.	Complete servicing, checking, testing of 415 volt L.T. Panel board, thorough out cleaning of all panel by air blower i/c checking of joints and set rights the same, maggering, testing, replacement of all defective parts etc as reqd.	1 job		Job	
7.	Servicing of 70 KVA water cooled D.G. Set i/c providing of filters, checking of panel in all respect, testing of D.G. Set i/c changing of Engine oil etc as reqd.	1 job		Job	

2/56.

2/56.

2/56.

2/56.

Each
Each

Each
Each

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ADDITIONAL CONDITIONS

The following special condition shall be read in conjunction with conditions indicated in standard "GENERAL CONDITION OF CONTRACT" for central P.W.D works-1998 forms. In the event of any discrepancy between these forms and conditions hereunder, the later\shall prevail.

- 1.The work shall be carried out as per CPWD general specifications for electrical works (part-IV-substation) as amended up to date.
- 2.As the staff engaged by the contractor shall be his employees and shall wear uniform while on work. The uniform shall have the badge indicating their name. If it is found missing at any occasion a recovery at Rs. 100/- (Rs. one hundred only) per occasion shall be made from the bills of the contractor.
- 3.The staff shall always remain available at site round the clock. If any staff of the contractor is found missing/absent from the work place at any time during the period of his shift/duty a recovery shall be made at the rate of Rs. 2000/- (two thousand only) per occasion.
- 4.The contractor shall have to arrange, at his own cost, all types of tools and plants etc. as required to carryout the complete work. No. T&P shall be issued to the contractor by the department.
- 5.The contract can be terminated by the Engineer-in-charge at any time without assigning any reasons and without any compensation, if any.
- 6.The contractor shall arrange the log books suitable for sub-station and D.G. sets at his own cost and maintain the log books in a manner as approved by the Engineer-in-charge.
- 7.The contractor shall be fully responsible for any damage caused to building, machineries equipments, which are properties of the department by any of his staff and shall be bound to make good such damages forthwith failing which the Engineer-in-charge shall get the damage rectified/replaced at the contractor's risk and cost and the amount recovered from the contractor's dues.
- 8.The contractor shall be responsible for the general cleanliness of DG sets and sub-station its various accessories, tank and sub-station room i/c transformer and HT rooms inside and near outside and its surroundings at all times. All the materials needed for it like broom, vim, dhoti, soap, etc. shall be arranged by the contractor at his own cost. If the cleaning is not found satisfactory at any time, a recovery of Rs 50/- (Rs. Fifty only) per occasion noticed shall be made from the bills of the contractor.

Minimum staff to be deployed by the contractor shall be

- 9.Electrician -3 No. in three shifts. (One in one shift i.e. 6am to 2pm , 2pm to 10pm & 10 PM to 6 AM).

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The payment shall be made to the contractor Monthly However it may be delayed due to any reasons like non-availability of funds, L.O.C. and other unforeseen reasons, the contractor shall not claim any thing extra in such contingencies but shall make regular and timely payment to his workers deployed for the work.

11. The department shall not be made party to any legal issue entered into by the contractor during the period of this contract.

12. The contractor shall provide first Aid box for his staff at site within 7 days of start of work failing which the Engineer-in-charge shall do the needful and recover the expenses from dues of the contractor.

13. The work shall be done by well-qualified and experienced staff of the contractor and the contractor shall ensure that all the persons executing the work have the valid electrical licenses, where-ever applicable. Consequences arising due to the default of contractor to comply with the above condition would be contractor's responsibility. The photocopies of requisite license of supervisor and wireman with photo to be submitted to divn. Office within three days of issue of acceptance letter.

14. The rates quoted shall be inclusive of all type of local/central/states etc. taxes and duties etc. and nothing extra shall be paid for increase/decrease of these taxes and duties etc. during the currency of the contract.

15. In case of any disobedience by the staff of the contractor with the authorities/ engineer-in-charge and his authorized representative, the contractor shall be responsible fully for the such act and consequences and such shall be removed from the site immediately.

16. The number of the equipments for operations and routine maintenance of sub-station may be increased/ decreased as per the site requirement by the Engineer-in-charge.

17. The contractor shall be fully responsible for the safety and security of his all staff/ employed on the work under this contract.

18. The contractor has to take over the complete inventory before starting the works as per Annexure- "C" and should handover the same in good condition after termination of contract. If any discrepancy is found, the contractor has to make good at his own cost otherwise recovery will be made from the contractor's bill. The decision of Engineer-in-charge will be final and binding on contractor.

19. Whenever any major defects occur in the system, the firm will inform immediately to department for taking appropriate action.

20. For holidays/Sundays no extra payment will be made, it is contractor's responsibility to allow weekly off or holiday to workers. (But the sub-station must be manned round the clock).

The scope of this contract also includes:-

A. Sub-station along with equipments

1. Deputing necessary trained staff to operate 1x400 KVA sub station round the clock i/c Sundays and holidays(in three shift).

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2. Maintaining and up keep of every associated equipment and hardware in proper functional condition.
3. Recording all necessary operating parameters and tripping of relays of LT/ OCBs/ ACBs and temperature of gear oil which requires immediate attention of the department on due time.
4. Bringing to the notice of the department any defect/malfunctioning of any associated equipment or switch gear which requires immediate attention of the department.
5. Keeping proper watch and ward of equipment and machinery installed in substation premises.
6. Servicing and up keep of switch gears, and L.T OCBs/ACBs relays, transformers and associated equipments, etc. in accordance with the maintenance routines as per Annex 'A'.
7. Making good all the losses/ damages to the equipment or systems if any as a result of negligence or default of operating staff.
8. Informing the department well in advance about the requirement of any spares, consumable items necessary for satisfactory operation of the sub-station.
9. Replacement of the fuses spares or switches gear, etc. as supplied by the department.
10. Recording of the maintenance activities in a prescribed manner.
11. Testing and recording of transformer oil as required.

B. D.G. set & equipments

The scope of this contract also includes:-

1. General maintenance of storage batteries with materials like distilled water, acids, battery terminals leads greasing of terminals etc.
2. Periodical cleaning of radiators, water fillings etc.
3. Filter's cleaning, their replacements as per the manufacturer's recommendations and general standard Engineering practices.
4. Checking the electrical wirings, contactors, starters, switches, etc. regularly and recording the outcome in log book.
5. Maintenance schedule as per Annexure 'B' shall be followed.
6. Diesel consumption check periodically in presence of Engineer-in-charge.
7. The contractor shall arrange the log books of DG set at his own cost and maintain the log books in a manner as approved by the Engineer-in-charge.

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4. Check earth strip terminations with the body of all L.T. switch gear wherever it exists.

5. Check neutral earth connections of transformers for looseness.

6. Check battery charger and water density etc. change if necessary.

C. SIX MONTHLY CHECKS

1. Check earth resistance (if should not be more than 5 ohms in any case).

2. Check insulation resistance.

3. Check oil for dielectric strength (the result should not be less than 3 times normal working voltage).

4. Check fire extinguishers and other fire fighting equipments for normal working in sub-station.

NOTE:-

The above check shall be carried out preferably in the month of March and September.

D. YEARLY CHECKS

1. The oil level in transformer/OCBs shall be topped up if required.

2. All relay including over current and earth fault relays in all equipments shall be cleaned and checked for recalibration. The contractor will inform the engineer-in-charge immediately.

3. All ACBs OCBs or L.T. shall be cleaned. The contacts shall be checked for any pitting etc. and if found defective the contractor will inform the department.

4. Buchholz relay shall be tested for normal working. The tripping of transformer shall be tested along with alarm circuits.

5. The battery circuits and the battery shall be checked. The battery charger shall also be cleaned and checked for proper functioning.

6. Check all ampere meters, volt meters, selector switches etc for proper functioning. Repair and replace if necessary.

7. Check the proper functioning of the tap changers on the transformer in off load position and record the reading obtained. Intimate the department if any discrepancy is noticed.

8. L.T./OCB contacts shall be cleaned and checked appropriate/approved grade of grease shall be applied.

9. The explosion vent of the transformer shall be checked.

10. The rollers of the transformer should be checked and greased for proper rolling.

ANNEXURE - B

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MAINTAINANCE SCHEDULE FOR D.G. SET (AS PER MANUFACTURERS RECOMMENDATIONS)

A. DAILY CHECK

Lubricating system

Check for engine oil leak.

Check engine oil level.

Check hydraulic governor level.

Cooling system

Check for water leak.

Check for radiator air restriction.

Check hose and connection.

Check coolant level.

Check belt condition and tension.

Fuel system

Check for fuel leak.

Check sediment from tank and drain.....if required.

Air-intake system

Check for air leak.

Check air cleaner restriction.

Exhaust system

Check for exhaust leak.

Engine related

Check for unusual vibration.

Generator and switch gears

Check for air inlet and outlet for restriction.

Check windings and electrical connection.

Check power distribution wiring and connection.

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B. CHECK EVERY SIX MONTH/250 HOURS

Cooling system

Check fan hub, drive pulley and water pump.

Check antifreeze and concentration of coolant.

Air intake system

Check piping and connection.

Fuel system

Check governor linkage.

Check fuel line and connection.

Battery charging system

Check battery charging system.

C. CHANGE EVERY SIX MONTH/250 HOURS

Lubricating system

Change full flow filter, by pass filter, engine oil and hydraulic governor oil.

Cooling system

Change water filter/clean water reperator, cooling system.

Fuel system

Change fuel filter/clean float tank breather.

Air-intake system

Change air cleaner clement/ clean crank case breather.

Engine-related

Grease fan pillow block bearings/bearing.

Clean D.G. set.

NOTE: - Material required for replacement shall be supplied by the department.

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Annexure - C A₂

INVENTORY

Sub station and D.G. set at Millenium park.

1. H.T. panel 11 KV with 630 amp VCB with all necessary accessories and protections-1 set.
2. Indoor transformer 400 KVA 11KV /0.433 volt 3 phase 50 HZ with all necessary material protections. -1set.
3. M.V. panel board 415 volt with all necessary accessories and protections. "
- a) Incoming 630 Amp ACB -1No.
- b) Bus coupler 630 Amp ACB -1No.
- c) ACB 400 amp for D.G. set -1No.
- d) 125 Amp TP&N FSU 7 Nos.
- e) 63 Amp TP&N FSU -3 Nos.
4. Power pack unit-110 /230 volt AC incoming. And 110 volt/AC /240 volt D.C out put- 1 set.
5. 11 KV 3 core 240 sqmm XLPE al. cond. Cable -1 lot.
6. 31/2 X240 sqmm 1.1 KV PVC insulated PVC sheathed armored cable 1 lot.
7. Cable from L.T. panel to D.G. set 4X70 sqmm - 1 lot.
8. Plate earthing 4 set.
9. Internal electrical installation of sub. station.- 1 lot
10. Various safety equipment as per standard practices -1lot.
11. 76 KVA D.G. set with panel 1set.