SECTION-B

SCHEDULE-A

1.0 Intent of specification:-

This specification is intended to cover the general requirement of Invitation of Tender for Engineering, Design, Manufacturing, Supply, Erection, Commissioning, testing & maintenance of Variable Frequency Drives (VFD) of Medium voltage (6.6 KV) drive for 210 MW unit-4 Induced Draft Fans – 2 Nos. (ID Fans – 6.6 KV, 1700 KW motor) of Ukai Thermal Power Station of Gujarat State Electricity Corporation Limited (GSECL) – Fitting of VFD against existing system running without VFD installation.

1) Reputed make Medium voltage AC Drive suitable for 3-phase, 50Hz standard induction Motor for 6.6 KV motor of 210 MW Ukai unit-4 ID Fans – 2 Nos. Application consists of isolator & vacuum contactor, transformer protection relay with air conditioning system (with duct). With VFD Cell By pass facility
2) Bypass Panel Consist of Isolator & Jyoti / ABB Make Vacuum Contactor
3) Air-conditioning system of Reputed make to maintain required room temperature for VFDs
4) Transformer Protection Relay
   Make: ABS, Model: SPAJ 140C .
5) Cable (ICON, Polycab, Universal, KEI, Torrent or Equivalent make) including cable trays

   - HT/LT Power Cable
   - Control Cable FRLS Cu Armored, Shielded,
   - Signal Cable FRLS, Twisted, Cu, Armored, Shielded,
   - Any other cables required for the commissioning of VFD drive.

2.0 General information.

2.01 The scope of supply to be furnished under this contract has been outlined under various sub specifications.

2.02 The bidder shall visit site to appraise himself about the equipment for smooth & trouble free operation of the entire system. Any additional instrumentation not specifically included in this specification but considered necessary by the contractor or purchaser for safe and satisfactory operation of the plant shall also be included in contractor's scope of supply without any extra cost.

3.00 Scope of work & General Terms & Conditions:-

Installation & Commissioning:-

Complete installations of equipment construction, installation, testing, commissioning & Maintenance services, which include taking delivery of plant and equipment from rail/road station or trucks, storage of all equipment under this contract, are in bidder's scope.

GSECL will provide a single point free of cost adequate drinking and service water, electric supply for construction (1 phase & 3 phase) will be given at one point.

GSECL will provide one residential houses (Quarter type E / IV) for staff and facilities for occasional use of Guesthouse for executive members of supplier on payment basis if available .

4.0 SCOPE OF SUPPLY / WORKS:

This specification concerns the Complete Engineering, Design, Manufacturing, supply, erection, commissioning testing & maintenance of medium voltage (6.6KV) drive for 6.6 KV, 1700 KW induced draft fans – 2 Nos. (ID Fans) of Ukai TPS unit-4 with its accessories and utilities to complete the project on turn key basis as per specifications of this tender.

Total compatibility with the existing Power plant environment and infrastructure is required. Therefore GSECL will approve the entire system constructed and supplied by the contractor.

The following products and services define the scope in total:

1. Complete Engineering, Design, Manufacturing, Supply, erection, Commissioning, testing & maintenance of medium voltage (6.6 KV) drive for ID fans of unit-4 of Ukai Thermal Power Station with the complete drive & bypass system require for completing this project.
2. The party shall have to fit the complete VFD system with the existing system having no VFD system for 6.6 KV -1700 KW ID Fan motors of Ukai TPS unit-4 .
3. Construction, Delivery as per this tender document, item receiving at concerned TPS plant, equipment transportation inside and out side the plant, storing, house keeping, equipment mobilizing to installation site, Installation, interconnection, pre commissioning, Commissioning, trial run, guarantee test run on process with energy savings and set process parameter guarantee.
4. Civil work (construction of room for Drive & Bypass panel inside GVDC, ducting, false ceiling, tiling etc.), air-conditioning, air filtration (chemical filter unit), electrical, mechanical, instrumentation, communication with DCS/existing System. Supply of these items, related engineering and execution jobs to completely integrate the drive system to the existing one.
5. Spare parts, services and site support. Documentation and test results.
6. Decommissioning the site support. Documentation and test results.
7. Dust free room approved by concerned TPS civil Section for MV drive with bypass panel.
8. Supply of MV drives with bypass facility.
9. Isolator & Vacuum Contactor Bypass panel with electrical logic - 01 no
10. Commissioning of MV drive and Bypass panel.

10 Keep necessary spares at concerned TPS during Warranty & maintenance contract period of 5 years after completion of warranty period so that in case of failure of VFD, it can be attended immediately.

11 Necessary Heat management system (Air conditioned system) inside the room is to be provided to evacuate heat loss and maintain room temperature at or below 35 degree C.

12. False Ceiling & Lightning with sufficient Illumination inside the room.
13. L T switchgear distribution panel.
14. Ducting - Hot air removal duct from MV drive to out side the room in atmosphere and inlet air ducting from AC to inside the room.
15. Provide MV drive's User Manual and Maintenance & Trouble Shooting Manual in English.(3 copies)

16. Necessary drawings - Civil room drawing, GA drawing of MV drive panel, Control drawing of MV drive panel, GA drawing of Bypass panel, Electrical control logic of Bypass panel (2 set).
17. Cable Tray and Cable laying from MV drive room to Breaker Room, MV drive room to Motor, MV drive room to control room (Power cable and control cable)
18. Cable jointing & cable termination.
19. Transformer Protection Relay.
20. Earthing Strip for Earthing MV drive panel & Bypass to the main earth pit of Ukai TPS
21. Required cables - Control cable, auxiliary power cable, Signal cable and any other cables required for the commissioning of VFD system.
22. **Utilities:-**

i) **Power supply:-**

Electrical Power connection 3 phase 4 Wire, 415V will be given at one mutually agreed point free of cost as per GSECL's terms & conditions. Bidders shall have to arrange for further distribution of supply at their own cost.

ii) **Instrument Air:** -

Air connection for work will be given at mutually agreed point and subsequent distribution if required shall be in the scope of supplier.

iii) **Drinking water:** -

Connection for water will be given free of cost at one point. Further distribution has to arrange by bidders at their own cost.

23. The dismantled and removed parts etc are to be credited in Ukai TPS store as per instruction of Engineer-in-charge is in your scope.
24. Before submitting bids the contractor has to visit Power Station site for study of situation of work.
25. The required tools, tackles, chain pulley blocks, jacks, D-shackles, slings, mobile crane, manpower & materials etc. are in bidder's scope.
26. The contractor has to carry out the work as per schedule outage.
27. The work should be carried out in the premises of GSECL only as per instruction of Engineer-in-charge.
28. If any change, modification, additions/deletions required even with supply of material for existing system are in bidder’s scope.
29. Delivery of the equipment should be **F.O.R. power station door delivery basis.**
30. Material delivered at Ukai Thermal power station store will have to be transported to the place of installation by the bidder.
31. You have to submit the complete necessary drawings for offered system at the time of supply along with BAR CHART.
32. Necessary civil drawings / Works is to be approved by our civil section and alignment works to be carried out for above work are in your scope as per instruction of EIC.
33. Labor license to be arranged by the bidder.
34. GSECL will not hold responsible in any case for injury, Fatal or non fatal accident occurred to contractor's person during execution of work.
35. Agreement is to be executed as per Board’s rules in consultation with the chief Engineer (Gen.), Vadodara before starting the works.
36. During execution of work, any damage or theft to the supplied material/part thereof will have to be repaired / replaced by bidder.
37. Materials supplied are to be insured against losses/damages/theft during transit/Store/installation by you and no reimbursement will be made by GSECL.

38. Any equipments/material damage during transit, storage, installation, commissioning, Testing and guarantee & maintenance contract period shall be replaced free of cost by bidder.
39. The party shall have to carry out the necessary test before dispatch of VFD and test certificates for the test carried out on equipment or material shall be submitted before dispatch or supply. All tests will be verified by Engineer of GSECL at the site.
40. Suitable date for erection, commissioning & testing etc shall be intimated after receipt of complete material at site.
41. Necessary testing of the installed equipments etc. is in your scope.
42. All drawing of the equipments are to be got approved before commencement of work.
43. Separate proper earthing of the system is to be provided by the party.
44. The party shall have to provide their own DC source for the complete system.
45. The party shall have to provide complete interlock system as per requirement of site.
46. The system should work with frequency of 50 HZ with maximum permissible limit of +3% to (-5) %.
47. The equipment should be vermin & dust proof.
48 The equipment should be suitable for operation an environment of coal dust, cement dust, ash dust, paper lint, sand / dirt of 10-100% concentration : 0.005 – 0.025 of per cu. Meter.
49 The speed should withstand deceleration of 1% of base speed per second and emergency deceleration of 5% of base speed per second.
50 The speed holding accuracy of the system should be 1% under steady state condition.
51. The bidder has to submit the type test report for the complete VFD system from the Govt. approved laboratory.
52. The bidder shall have to submit the factory acceptance test format & quality assurance plan along with technical offer.
53. The bidder shall have to perform functional test, dimensional test, protection test, load test etc. during inspection at your site.
54. The party shall have to maintain the stock of essential spares at GSECL site to meet the emergency to avoid delay in outage of VFD system and the list of the same is to be submitted along with technical bid.
55. Drive should provide 6.6 KV input to the motor without stepping up the voltage. No output transformer is allowed.
56. No output filters & harmonics filters allowed.
57. The drive should minimum efficiency of 96% including input transformer.
58. Voltage & current harmonics should be according to IEEE 519-2000 standards.
59. Power & Control interface is required with existing system.
60. The system should be energy efficient, designed as standard products and shall provide high reliability, high power factor, low harmonic distortion and low vibration/wear/noise.
61. The VFD should have a suitable control / power supply monitoring system.
62. The VFD should be provided with digital communication capability to allow direct control and status communication with a PLC or other control system.
63. The VFD should be capable of maintaining a minimum true power factor of 0.96 from 60% to 100% load.
64. The thermal overload capacity of VFD should be 120% for 60 seconds, 150% for 3 seconds & 200% immediate.
64. The system should be designed to deliver the motor input current & torque for the complete speed torque characteristics of the motor, with input power supply variation of ± 10% and frequency variation of ± 5%. It is capable of withstanding thermal & dynamic stresses and transient mechanical torque, resulting from short circuit.

65. No appreciable increase in noise.Limit should be less than 85db.
66. Harmonics at the supply side of the drive system at primary of the main input transformer shall be restricted within the maximum allowable levels of current and voltage distortion as per recommendations in the latest edition of IEEE-519.
67. VFD induced torque pulsation is limited to max. 1%.
68. Adequate short circuit and over voltage & under voltage protection shall be provided for the converter and inverter system.
69 All Power diodes should be of silicon type.
70. The power converter circuit should be designed so that motor can be powered at its full name plate rating continuously without exceeding its rated temperature rise due to harmonics current generated by the inverter operation.
71. Short time voltage dip up to 50% of nominal voltage should not cause the control system to stop functioning and should not tripped drive system.
72. The system offered should incorporate adequate features, properly coordinated for the drive control and for motor but not limited to the incoming line surge protection, under / over voltage protection, phase loss, phase reversal protection, Programmable over current protection and under load protection, inverter fault, over frequency operation, ventilation loss, over temperature of equipments, over speed of motor, specific motor protection including motor winding, bearing temp., over current, over load, negative phase sequence, locked rotor and earth fault protection etc., system earth fault protection, over & under frequency, rotor earth fault and additional protection for drive system.

73. LIST OF MINIMUM Tools&Tackels TO KEEP READY AT SITE BY THE BIDDER

1	Magger required capacity	01 No. Each
2	Millimeter / Tong tester	02 No. Each
3	Tool / Spanners	02 Set
4	Any Special measuring instrument	As Per requirement.
5	Any Special Spanner / Tools	As Per requirement.

Technical Specification :-

Data Sheet for 6.6 KV MD Drive VFD for ID Fans of Ukai TPS unit-4 (210 MW)		
Model		
Motor rated power	kW	
Motor FLC	Amps	
Motor voltage	Volts	
Speed range	%	
Speed control	%	
Technology		
Microprocessor-based multi-level switching		
3 Phase supply voltage, Voltage tolerance	kV	
Supply frequency, Frequency tolerance	Hz	
Rectifier device		
Inverter device		
Cell voltage	V	
umber of cells		
Number of rectifier pulse		
Inverter multi-level number		
Cell bypass Included		
Fans or cells redundant		
DC link capacitors		
Input power factor across speed range (20 – 105%).	Cos Ø	
Variable speed drive efficiency (Including transformer)	%	
Voltage cut ride through duration		
Variation in response time & process time		
Provision of temp. (self cooling fan) & humidity control		
Volt dip (should be more than ± 20%.)	%	
Catch spinning load		
Quadrant of operation		
Driven equipment		

Controller DCS compatible		
Cooling		
Enclosure protection (required IP-20)	IP	
Ambient temperature maximum	ºC	
Humidity (non condensing - 0% to 95%)	%	
Altitude (maximum)	m	
Noise at 1 meter	dB(A)	
Manuals provided in English	Yes/ No.	
Typical Size Length (Including transformer) Width Height	mm mm mm	
Weight	kg	
CE Mark		

Chief Engineer (Gen.)
GSECL, C.O., Baroda

Special Terms and Conditions of the Contract:

1. The Scope of work mentioned in tender documents is tentative and may vary as per plant / system requirement for smooth and reliable operation at rated parameters.

2. The job mentioned in the scope of work is guideline, but not limited to specified in scope of work and includes jobs otherwise necessary to complete the work.

3. The party shall have to complete the work within scheduled time mentioned in the offer. However, if outage of ID Fans is required for commissioning activities or to put VFD in service, the same will be given as and when opportunities arise i.e. during forced outage/planned outage or during partial load of the unit.

4. The party shall have to indicate the no. of hrs. of outage of ID Fans required for commissioning activities of Complete VFD system and to put VFD in service.

5. The painting job should conform to IS 1477 part 1 1977, IS 9954 1981 along with ASTM D823 – 95 2001 and thinner, primer and paint along with painting accessories are to be supplied by the contractor. The paints purchased should have prior approval of GSECL.

6. The contractor shall establish site office and stores at the specified location as per instruction of Engineer-in-Charge or his authorized representative.

7. All spares including, T&P, consumables shall be in the scope of contractor.

8. All the material under the contract brought by contractor after proper entry & verification by the Engineer-in-Charge or his authorized representative shall be stored properly by the contractor.

9. The contractor shall be fully responsible for the watch and ward of the material and shall take necessary insurance of the material under his custody for the entire period of the execution of work.

10. The contractor shall maintain proper record of all the spares and consumables used during the execution of work for verification by Engineer-in-Charge or his authorized representative.

11. Electricity and water will be provided by owner i.e. GSECL free of cost at one location only. Further distribution of the same if required will be in contractor's scope. the contractor has to arrange his own electric cable and bulb etc.

12. De watering pump, Wooden sleepers, channel / pipe rollers etc if required is to be arrange by party.

13. The contractor shall keep the site clean and dispose off all waste material and rubbish etc at specified locations on daily basis. The contractor shall also remove all temporary arrangements made during working and shift them to storage area as per instruction of Engineer-in-Charge or his authorized representative.

14. The contractor has to clear the area after job completion. The contractor would also return the old spares to stores / specified area as per the instruction of Engineer-in-Charge or his authorized representative.

15. The contractor shall carry out all the works to the highest standard of quality. However, the contractor shall submit quality plan for supply and services, in line with quality checks as mentioned else where in specification for finalization in association with Engineer-in-charge or his authorized representative.

16. The contractor shall deploy sufficient number of employees / workers for completion of work with-in the scheduled time. All the contractor's employees / workers deployed for job shall be of appropriate skills.

17. The contract shall be valid for a period of 12 months with firm price from the date of award. During this period the contractor will be asked to start the work at any point of time by owner i.e. GSECL.

18. The spares etc. shall be supplied with in one month or as per agreed schedule from the date of issue of award. However the supply of spares etc. shall be well before the start of work matching the schedule of shutdown given by the owner.

19. The contractor shall have to carry out the job round the clock. However on Sundays, religious / national holidays the contractor may be required to carry out the work as per instruction of the Engineer in charge or his authorized representative.

20. a. The contractor shall stand guarantee for the spares supplied by him for a period of twelve months from the date of commissioning of equipment / system. In case of failure within warantee period, the contractor shall replace the spare / attend the job free of cost.

    b. The defect liability period for the works carried out by the contractor is for the whole supplied system at Ukai TPS for the comprehensive (maintenance and service) warrantee period of 12 months from the date of commissioning or 18 months from the date of supply which ever is earlier .The contractor shall look after the total system for five years as a comprehensive maintenance service contract after the completion of warrantee period.

21. The contractor shall ensure that his authorized representative along with the work force is available at site during the period.

22. Wherever it is required, the contractor shall erect scaffolding and platform for the purpose of work and it should be safe for working of the personnel involved on the job. Scaffolding material, coir / rope etc is to be arrange by party. The same shall be dismantled after the completion of work and the scrap materials should be disposed off at a suitable location as directed by the Engineer-in-charge or his authorized representative.

23. The contractor shall dismantle the equipment carefully without damaging to any of its parts. All dismantled parts are to be kept in a clean / well covered area, and responsibility of theft / pilferage / damage to dismantled parts is that of the contractor. However, if there is any damage before dismantling of the equipment, the same is to be shown to the Engineer in charge or his authorized representative.

24. The labourers deployed by the contractor for executing the overhauling contract shall be fully insured for the entire period of execution of work as well as during maintenance service contract at site before start of work by the contractor at his own cost. The owner i.e. GSECL will not be responsible for any loss or damage / injury to contractor's personnel.

25. The contractor shall arrange proper & sufficient number of safety appliances such as hand gloves, helmets, safety shoes, safety belts etc and ensure that his workmen use them during work execution. failing which a severe penalty of Rs. 500/ per person per instance will be imposed on contractor.

26. The contractor's workmen shall be required to work at various heights, locations & in vicinity of rotating / running / charged equipment and also equipment in hot working conditions. He should also give proper instruction to his workmen to avoid accident.

27. The contractor shall at his own expense comply with all labour laws during the entire period of execution of work.

"GENERAL SAFETY RULES / NORMS" TO BE OBSERVED BY THE CONTRACTORS.

All the contractors working at respective Thermal Power Station and corporate office for Project Erection testing, commissioning shall have to strictly observe the following Safety Rules. Concerned Contractors are responsible for informing & observance of these rules by their supervisors/employees/labours as well as the supervisors/ employees/ labours of agencies/ sub-Contractors engaged, if any, by them for the work contract awarded to them. Prior to commencement of the work, Contractor shall have to submit a written assurance on their letterhead to the concerned Sectional Head / Engineer-in-charge that they have thoroughly gone through these Rules, have educated their employees / employees of their sub contractor and will strictly observe the said Rules while execution of work under work contract awarded to them. They will have to indemnify the Corporation for any loss or damage / accident / injury to the Corporation's property / employee or employee of their own in default of non - observing these rules.

01	Persons to be employed for carrying out the work shall possess required qualification, are fully trained and conversant for works to be done. All persons should have gate pass. Register consisting the full details i.e. address, ph no, nearest relative, of all persons to be maintained. During the work execution, one trained & competent supervisor should always remain present at site.
02	The contractor shall take all the required safety measures prior to commencement of work on dangerous substances, machineries or area at which cautionary notice is displayed and obtain "Line Clear" or "Work Permit" through the concerned Department / Section.
03	Prior to carrying out welding, gas cutting, furnace heating or any other hot work job, remove all the inflammable material lying at or nearby worksite or cover it properly by suitable protective covering. Also, special care shall be taken before carrying out such job & see that all possible contributing factors to set fire shall be removed / vanished prior to commencement of the work. Advance intimation shall be given to concern section / fire section to commence the work in fire prone areas. They should also keep ready all the First Aid Fire Extinguishers / equipments & fire extinguishing media / material like sand / water buckets or other appropriate equipment at such place.
04	While carrying out work in confined space or inside vessel, obtain necessary "Confined Space / Vessel Entry Permit" from concerned department prior to commencement of the work. For lighting in such areas, only 24-volt (ISI certified & with proper guard) hand lamp shall be used. For taking care of the persons working inside the confined space / vessel, a supervisor / person capable to keep continuous watch on person(s) working inside, assist them incase of emergency or arrange to get immediate outside help, shall remain present at entry point. Use full body safety belt without failed. While working inside sewage, trench or in-depth, a person to warn outsiders / entrants / passers etc shall remain available near entry point or the entry point shall be cordoned by a barricaded tape with a cautionary notice. After completion of the works, all the lids / covers / grills / grits opened, shall be re-fixed / re-placed in the original position as it were prior to commencement of the work and leave the work place in safe condition in all respect, so as to prevent

<table>
<tr><td></td><td colspan="3">accident to fellow workers.</td></tr>
<tr><td>05</td><td colspan="3">Do not work on or block (by stacking material, spare parts, tools-tackles, equipments etc), any passages / walkways / gangways / aisles / staircases / ladders / lifts or any other approaches / roads leading to plans or its auxiliaries, on which there is traffic movements or possible traffic movements in case of emergency. Such passages are meant for safe escape in the event of emergency. If it is utmost necessary to carry out work in such area with blocking of passage, prior permission of Competent Authority or the Engineer-In-Charge shall be obtained. To demarcate / declare the area as UNSAFE, cordon it using barricading tape & display suitable caution notice or keep a person to restrict / divert the traffic on this route through other safe passage.</td></tr>
<tr><td>06</td><td colspan="3">Prior to use power / electrically operated hand tools / equipments / machines / gadgets like welding machine, hand grinder, hand drill etc, ensure for its safe operation & use it only if it is found safe to use. Do not use defective, unsafe or improperly maintained equipments.

The electrical power supply required to run such equipments shall not be taken directly at their own but shall be obtained through concerned Electrical Maintenance Departments or their authorized persons or under their observations / guidance only. The Electrical Section shall provide temporary electrical connection up to contractor’s Mains Board on which it is compulsory to install mains switch, ELCB & fuses of adequate capacity. All such equipments shall invariably be earthed adequately to prevent electrical shock, sparking, short circuit etc. Power cord to be used shall be of adequate capacity, without any joint & shall consist of earth wire also. Hence, it is necessary to use adequate capacity 3-wire power cord for single & 5-wire power cord for three phase power connections. The plugs, receptacles, pins, holders etc shall be of adequate capacity & safe to use.

All electrical & mechanical equipments / tools-tackles viz. welding machine, cutting machine, Grinder, Drill, Chain Pulley Blocks, Hook chooks etc required to be used during work execution shall be of standard make & bear ISI certification mark on it. The consumables like welding electrodes, grinding wheels / discs etc which has specific prescribed life span shall not be used in any case if its expiry date is over.</td></tr>
<tr><td>07</td><td colspan="3">It is compulsory to use standard make Personal Protective Equipments (P.P.Es.) as per the job requirement. Do not work without use of required P.P.Es. Contractor is responsible to provide standard make (ISI approved) Personal Protective Equipments / Safety Gadgets suitable to give sufficient protection against hazards involved in their work / job to their staff, as per the job requirement and insist / enforce their staff to put on the same while at works.

The ongoing work is liable to be stopped at any time if your staff found working without P.P.Es. Following is the list of various P.P.Es. to be used for various works / worksites.
List of safety equipments

<table>
<tr><td>01</td><td>Industrial Safety Helmet.</td><td>For protection of head against falling objects or during fall of person from height.</td></tr>
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	02	Safety Goggles (Grinding, Welding, Punk, Panorama etc).	For protection of eyes against flying particles / dust, chemical splash, spark, arc, flashover etc.
	03	Face shield (Half or full).	For protection of face against flying particles / dust, chemical splash, spark, arc, flashover etc.
	04	Earplug / Ear muffs.	For ear / hearing system protection while working in high noise level area.
	05	Apron (Rubber / PVC / Asbestos / Leather / Cotton).	For body protection against chemicals, oils, sharp edged objects, heat, hot objects etc.
	06	Gloves (Rubber/PVC, Asbestos, Leather, Electrical shock proof).	For protection of hands against chemicals, oils, sharp edged objects, heat, hot metals/objects, electricity etc.
	07	Safety / Leather / Asbestos shoes, Gum Boots etc.	For protection of leg/feet against falling objects, sharp edged objects, heat, hot metals/objects, electricity etc..
	08	Safety Belt(full body) / Rope / Life line / Fall prevention system etc.	For fall prevention while working at heights or in depth, working in vessel or in confined space.
	09	Dust Respirator / Scarf.	Protection of respiratory system against dust.
	10	Chemical Cartridge Respirator	Protection against chemical fume / vapor etc.
	11	Canister Gas mask.	Protection against toxic/poisonous fumes/gases.
	12	Air supply respirators.	Working in oxygen deficient zone.
08	Before using lifting machines / tackles (like C.P.Bs., Hook chooks, winch, forklift, mobile crane, EOT crane etc) & its attachments (like D-shackles, slings, U-clamps, Eye bolts or any fixtures), it shall be checked and used only if found safe to use. Also, ensure that these are tested, examined & certified in form no 9/10 by Competent Person as per the Factory act-1948 and its validity does not expired. Further, it shall be fixed properly and firmly prior to lifting the weight.		
09	Scaffoldings to be used for working at height shall be of adequate size & capacity. Obtain the work permit when working at height. While climbing on such scaffolding or working on any structure at height, use of full body safety belt & Helmet is compulsory. It is also necessary to fasten chinstraps of the helmet.		
10	Contractor or their employee shall not interfere in day-today routine plant activities / works except the work assigned to them, shall not loiter in the areas other than their work jurisdiction, as well as shall not temper / operate / touch the machineries/equipments/auxiliaries with which they are not concerned. Also, the contractor shall strictly instruct their staff for not to sit or take rest at/near/below running		

	plants, auxiliaries, systems or any place which is risky, hazardous & prone to accident.
11	The cylinders containing poisonous / toxic or inflammable / explosive gas like Oxygen, Acetylene, LPG, Hydrogen, Ammonia, Chlorine, CO2 etc shall be handled safely taking due care. To handle / shift such cylinders a special trolley /cage meant for it must be used but in no case it should be rolled.
12	On completion of the work, cotton waste, spilled oil / grease, pieces of welding rod & other waste material shall be removed from work site and the area shall be left safe, neat & clean.
13	In case of any injury / accident while working, it shall immediately be reported to Safety Department through concerned Sectional Head / Engineer. The prescribed Form No. 21 may be obtained from concern section or Safety Officer. For any incident occurred but have no injury to any persons should also informed to safety officer as Near Miss Incident.
14	In all risky job, before start the work contractor should obtained General Safety Work Permit through concerned section from safety dept in well advance.
15	For performance evaluation of contractor safety factors of work accident, fire incident & near miss accident will be consider. Steps can be taken to review the job assignment up to cancellation for negligence.
16	In case of noticing smoke or fire during their work execution, they shall make immediate efforts to extinguish / control it and simultaneously inform the Fire Brigade on phone No. 222 or 666. Shift the casualty to nearby hospital after rendering first aid in case of accident.
17	Over & above these, contractor shall have to follow all the safety requirements / rules & regulations / norms and legal provisions laid down in various statutes. Particularly the provisions of The Factories Act-1948 & The Gujarat State Factories Rules-1963 (Amended up to date) shall be followed strictly. The contractor shall also obey the rules / regulations / instructions of the local Competent Authority for safety requirements.
18	The above rules shall be scrupulously followed and where required, they may contact the Safety Officer in case of any ambiguity or needs further guidance in this regard.

Chief Engineer (Gen),
GSECL,CO., Vadodara.

Contractor's Signature
with Seal & Date.

SCHEDULE – B

A - PRICE SCHEDULE FOR VFD OF EQUIPMENT –

SERVICE PART

Sr. No	Description	Qty	Unit	Price in Rupees
01	Construction of civil room, installation & commissioning of MV drive system, cable laying, termination & air conditioner	Lot (for 2 No of ID Fans)	Lump-sump	
	Total FOR Destination Price including packing & forwarding charges, service tax, CST, Freight & insurance charges and any other taxes & duties if applicable.			

Note: (1) The party shall have to mention the packing & forwarding charges in Rs., Service tax in Rs., CST in Rs., Freight & insurance in Rs. and any other taxes & duties if applicable in Rs. Separately.

(2) The price offered without above details will not be considered.

(3) The party shall have to quote the rates in Rupees only.

Authorized Signatory

SCHEDULE – B

B - PRICE SCHEDULE FOR VFD OF EQUIPMENT - SUPPLY PART

Sr. No	Description	Qty	Unit	Price in Rupees
01	_____ Make MV drive for 6.6 KV motors (1700 KW) of Induced Draft Fans (ID Fans) of unit-4 of Ukai TPS	2	No.	
02	_____ Bypass panel for 1700 KW / 6.6 KV drive (Manual off load isolator Panel)	2	No.	
03	AC system for MV drive	Lot	Lump – sump	
04	All cables & accessories HT cables, LT cables, LT control supply cables, Control Cable, Signal Cables, End termination Kit and any other cables required for the system as per requirement	Lot	Lump-Sump	
Total FOR Destination Price including packing & forwarding charges, service tax, CST, Freight & insurance charges and any other taxes & duties if applicable.				

Note: (1) The party shall have to mention the packing & forwarding charges in Rs., Excise Duty in Rs., CST in Rs., Freight & insurance in Rs. and any other taxes & duties if applicable in Rs. Separately.

(2) The price offered without above details will not be considered.

(3) The party shall have to quote the rates in Rupees only.

Authorized Signatory