GUJARAT STATE ELECTRICITY CORPORATION LIMITED
Ukai Thermal Power Station, Ukai Dam, Taluka Fort Songadh, DistTapi– 394680. Ph. 91-2624-233215, 233257
Fax: 91-2624-233300, 233315e-mail: ukaiceg@gebmail.com Website: www.gsecl.in

TECHNICAL BID

WT No. –3525

RFQ No. - 44018

TENDER FOR THE SUPPLY AND WORK

SUB: Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters of Ukai TPS.

Due on	Date : _____	At 3.30 P.M. (if Possible)

EMD paid YES / NO

EMD Demand Draft No._____ Date: _____

OR

SSI / NSIC Certification Number: _____

Duly Notarized : YES / NO

Notes:

(1) The party has to submit latest and valid DIC/SSI and subsequent NSIC/CSPO/DGS&D Certificate. Photocopy of DIC/SSI and subsequent NSIC/CSPO/DGS&D Certificate is not acceptable. It must be duly notarized. NSIC should not be more than 3 years old. **No exemption as well as relaxation i.e. tender fee, Earnest Money deposit (EMD) & Security deposit (S.D) shall be given to outside Gujarat base parties.**

(2) Tenders submitted **without** Tender Fee **and** Earnest Money Deposit (E.M.D.) will **not be accepted**.

GUJARAT STATE ELECTRICITY CORPORATION LIMITED

UKAI THERMAL POWER STATION,
TALUKA: SONGADH, DIST: TAPI,
PIN CODE – 394680

Tender for the Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters of Ukai TPS.

Issued to _____

_____

Demand Draft No. for Tender Fee **:** _____ & Date : _____

Demand Draft No. for Earnest Money Deposit **:** _____ & Date : _____

IMPORTANT NOTE :

This tender should be submitted duly signed without removing a single page. Otherwise the tender is liable to be rejected.

For SUPPLY TENDER, TIN / PAN Number should be invariable mentioned in their technical bid otherwise your offer will be ignored and price bid will not be opened.

Chief Engineer (Gen.)
GSECL, UKAI TPS

GSECL Ukai TPS

GENERAL INSTRUCTION TO TENDERERES

Sealed Tenders are invited from the contractors / firms who have executed same/similar job works successfully.

1.0 Tenders documents are in two bids system i.e. “Technical Bid “and “Price Bid (online only)”.

1.1 Technical bid is to be submitted in a separate sealed envelope and super scribing the envelope as “Technical Bid “ Technical bid shall be submitted with documents, as under, falling which tender is liable for rejection.

i) Latest Bank Solvency Certificate of minimum 20% of estimated cost from any Nationalized Bank / Public sector bank-IDBI bank / Private sector bank- Axis bank/ ICICI bank/ HDFC bank/ Kotak Mahendar bank/ RBL Bank/ Industrial bank/ Karurvyasya bank/ DCB bank/ Federal bank/ The Kalupur Co. Bank ltd./ Rajkot Nagrik Sahakari bank ltd./ The Ahmdabad Mercantile Co-operative bank/ The Mehsana Urban Co-operative bank/ NUTAN Nagrk sahkari bank ltd./ Dena Gujarat gramin bank/ Saurastra Gramin bank/ Bardoda Gujarat Gramin Bank/ YES bank. (Not older than 12months).

ii) Separate EPF Code No. Allotted by RPFC.

iii) PAN No. shall have to submit with Tech. bid.

iv) Experience evidence as per requirement in PQR.

v) Details of available equipments & Tool-Tackles along with the tender as per PQR.

The above documents shall be submitted in form of attested true copies along with technical bid. Also the successful contractor has to obtain valid labour license and Group Insurance Policy of the insured labourers under W.C. Act. Immediately for sufficient labours for the contract is entrusted and for extended period if any.

1.2 Bidders are requested to submit price – bid (Part-II) on-line only and not to submit the price bid in physical form. This is mandatory. If price bid is submitted in physical form, same will not be opened and only on-line submitted price bid will be considered for evaluation.

1.3 It is mandatory for all the bidders to submit their technical bid documents by both forms viz. on – line (e-tendering) and physically in schedule time. Tender documents submitted in only physical form will not be accepted and same will not be considered.

2.0 Bidders shall complete the tender document in all respects and they are to be signed with Company’s seal on all pages.

3.0 The bidders shall submit their offer without any deviations in general terms and conditions of the contract, or in Technical specifications/Items. Tenders with such deviations, shall be rejected. Incomplete and conditional tenders shall not be considered.

5.0 Intending bidders shall submit tenders after studying all tender documents carefully and after visiting the site for satisfying themselves of actual site conditions, location and accessibility of site and nature and extent of the work involved etc.
Submission of tenders implies that bidders have obtained all necessary information and other data required for executing the work. No, claim for extra charges on account of any misunderstanding or otherwise will be allowed.

7.0 Site cleaning and all approaches to the site shall be in the scope of bidders.

8.0 Bidders will not be allowed to give sub-contract of the works awarded to him for any reasons what so ever without permission of the Engineer-in-charge.

9.0 In the experience certificate, contractor has to furnish the details of same / similar works executed by him along with the list of equipments, tools and tackles and manpower available with him along with the details of the same, which he intends to deploy on site of the work. The successful contractor has to deploy all such resources at site during course of work.

9.0 Tenders without EMD or with part payment of EMD will not be opened or considered. The details of EMD paid shall be submitted in letter giving details of payment of EMD i.e. **demand draft Number**. The demand draft for EMD shall be put inside the cover containing technical bid & not inside the cover containing price bid. If this is done, the tender will not be opened or considered. Those who are exempted from payment of EMD shall submit a copy of certificate in separate cover along with the tender.

10.0 After opening of Technical bid no revised price from any bidders will be accepted.

12.0 Price quoted shall be firm, till overall completion of the work, under contract and there will not be any price escalation.

13.0 Date of opening of price bid will be intimated later on to those bidders who are qualified in technical bid. Price bid of only qualifying bidders on the basis of evaluation of technical bid shall only be opened. Price bid of bidders who are not technically qualified as per requirement of special note for prequalification shall not be opened.

13.0 The decision of GSECL in the matter will be final and no any claim will be entertained in this regard.

14.0 Tender shall remain open for acceptance, subject to the validity period of **180 days** from the date of opening of Tech.bid and during this period no tender shall be allowed to withdraw his tender. Any such withdrawal during the period will entail forfeiture of the Earnest Money deposited with the tender.

15.0 All the works shall be carried out as per specifications attached with the tender and relevant Indian Standards issued by the Bureau of Indian Standards. All materials procured should be confirming to relevant Indian Standards issued by Bureau of Indian Standards, wherever not specified in the item.

16.0 Tenders, which do not fulfill all or any of the conditions of the tender or incomplete in any respect, are liable to rejection.

17.0 GSECL reserves the right to reject any or all the tenders without assigning any reason thereof.

18.0 AGREEMENT:

As per corporation's rules, successful tenderer shall have to enter in to an agreement on stamped paper of appropriate value of Rs. 100.00 with the Gujarat State Electricity Corporation Ltd., in the prescribed form within one month. The cost of the stamp fee shall be borne by successful tender. The tender with specifications, schedules, drawings, the contract booklet to be signed by successful tenderer. The letter of acceptance, all above documents & subsequent correspondence shall be deemed to be a part of the contract agreement.

19.0 ARBITRATION:

01 All questions, disputes, difference whatsoever which may at any time arise between the parties to this contract in connection with the contract or any matter arising out of or in

relation there to, shall be referred to the Gujarat Public Works Contracts Disputes Arbitration Tribunal" as per the provision of the Gujarat Public Works Contract Disputes Arbitration Tribunal Act. 1992.

The reference to arbitration proceeding under this clause shall not:

(a) Affect the right of the E.I.C. to take possession of all or any tools, plants, materials & stores in or upon the work or site thereof or belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof.
(b) Preclude the E.I.C. from utilizing the materials purchased by the contractor in any work or from removing such materials to other place, during the period the work is stopped or suspended in pursuance of notice given to the contractor under General conditions.
(c) Entitle the contractor to stop the progress of the work of carrying out the additional or altered work in accordance with the provision of General conditions of the work where there are no specifications.
(d) Preclude the GSECL from getting the work done by another agency.

02 Neither party is entitled to bring a claim to arbitration tribunal latest by 30 days after the expiration of the defects liability period.

03 The provisions of the Arbitration and Conciliation Act 1996, Gujarat Public Works Contract Disputes Arbitration Tribunal Act-1992 and rules made there under shall apply to the Arbitration proceeding under this clause.

Note:
The clause no: 20" "Arbitration" of tender and contract for works booklet stands deleted and replaced by new clause as above:-

20. All royalties, , toll tax, local tax, GST, development charges, , welfare cess and any other taxes including works contract tax etc., in respect of this contract and also any statutory variation in future towards above mentioned taxes & any other taxes if levied in future by statutory authority applicable to the this contract shall be payable by the contractor and GSECL will not entertain any claim whatsoever in this respect. The rates will be "Excluding the service tax'. The reimbursement against "Service tax" will be paid to the contractor as per Govt. & corporation, rules & regulations. The proof of payment made by the contractor to the appropriate department shall be submitted to GSECL, failing which appropriate amount shall be withheld on getting information/instruction from the concerned department.

21. <u>IMS (Intergrated Management System) Requirement</u>

It is to noted that GSECL, Ukai TPS is establishing, implementing and complying with IMS (QMS 9001:2015, EMS 14001:2015 and OHSAS18001:2007).
You as a part of the GSECL Ukai team and as defined by the scope of mentioned standard, all contractors are required to comply with and participate to prevent occupational Health and safety hazards and risks including observation of safety rules. Further you are also to comply with all applicable legal requirements while executing the work, in case the job is assigned to you."

22. Party shall have to submit physical documents before cutoff date from the online submission as mention in tender notice.

23. Technical and financial bids shall be compulsorily submitted simultaneously online. i.e. no time gap in submission of technical and financial bids.

Signature of Contractor,
Name, Seal, detail address
With Phone/Fax.

CHIEF ENGINEER (GEN.)
GSECL: TPS: UKAI

ANNEXURE

TENDER FOR: the Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters of Ukai TPS.

On Firm's Letter Head.

CERTIFICATE-"A"

I / We _____authorized signatory of M/s. _____ hereby Certify that M/s. _____ is not related with other firms who have submitted tenders for the same items under this inquiry / Tender.

Seal of the Firm

Place

Date

SIGNATURE OF THE TENDERER WITH DESIGNATION

ANNEXURE-I

Technically qualifying criteria

TENDER FOR : Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters of Ukai TPS.

The bidders are requested to submit the technical bid with the following credentials for technically qualifying criteria in soft as well as hard.

Sr No	Technical Qualifying Criteria	Bidders remark regarding submission of document in soft as well as hard
1	The bidder shall be **original equipment manufacturer (OEM) for Energy meters and original software developer having CMMI level 3 or higher quality standard software system of management.** The offered system & meters have to be designed, manufactured and tested as per relevant IS/IEC with latest amendments. Authorized dealer will be accepted.	
2	Work experience: Offer of only those bidders will be considered who posses such type of works experience as mentioned in intent of the job and have successfully executed and completed the works satisfactorily in any Government/Semi Government / Heavy Industries / GEB (GSECL) / GETCO / NTPC / State Govt. / Central Govt. / Railway during last 07 years ending last day of previous month to the one in which tender is invited should be either of the following and proof of such type of works executed therein should be submitted with technical bid. a. Three similar completed works costing not less than amount equal to 40% of the estimated cost. or b. Two similar completed works costing not less than the amount equal to 50% of the estimated cost. or c. One similar completed work costing not less than the amount equal to 80% of the estimated cost. Similar kind of work i.e. Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters. Average Annual financial turnover during the last 3 years, ending 31st March of the previous financial year, should be at least 30% of the estimated cost.	
3	The bidder shall have to submit the separate P.F. Code No. in their name (under Employee provident fund organization, Regional office, obtained from the concerned authorities of their respective jurisdictions. Up-dated	

	copy for the same shall have to be submitted. In the event of non-possession of the separate PF code number, No tender will be considered.	
4	Bidder shall submit Details of orders for similar nature jobs carried out/executed along with documentary evidence as per annexure G in "Experience Detail." and performance certificate for continual three years in service for such executed work will submit as per annexure H in "Performance certificate" for the work experience satisfied in condition – 2 of qualifying requirements for bidders.	
5	The bidder shall ensure for the service support for the products and the equipment used therein for the project for a period of 10 years from the date of commissioning. Vendor shall give commitment letter in this regard.	
6	Bidder has to give assurance / undertaking to complete the supply & work within stipulated period of work completion without any delay due to any reason except force major condition and without any price escalations for any reasons.	
7	Latest Bank Solvency Certificate of minimum 20% of estimated cost from any Nationalized Bank / Public sector bank-IDBI bank / Private sector bank- Axis bank/ ICICI bank/ HDFC bank/ Kotak Mahendar bank/ RBL Bank/ Industrial bank/ Karurvyasya bank/ DCB bank/ Federal bank/ The Kalupur Co. Bank ltd./ Rajkot Nagrik Sahakari bank ltd./ The Ahmdabad Mercantile Co-operative bank/ The Mehsana Urban Co-operative bank/ NUTAN Nagrk sahkari bank ltd./ Dena Gujarat gramin bank/ Saurastra Gramin bank/ Bardoda Gujarat Gramin Bank/ YES bank. (Not older than 12months).	
8	The bidder shall have to submit up dated workman Group insurance policy covering all the labour who is going to work at Ukai TPS site.	
9	Consent for obtaining contract labour license from the appropriate authorities.	
10	The bidder should possesses own service tax number & shall have to submit the document for the same.	
11	The bidder shall have to submit the copy of PAN card.	
12	The bidder shall have to submit list of tools & tackles and men power in separate paper.	
13	For fulfillment of all the Labour laws, liabilities before starting of the contract work, the bidder shall have to submit the indemnity bond on non judicial stamp paper of Rs. 100/- to GSECL, UTPS for the tender amount.	
14	Certified copies of last three years audited annual account i.e. profit & loss account and Balance sheet if the estimated cost of the tender exceeds Rs.100 lacs (for 2 years tender). If the party is a proprietary party and not required to get annual account audited under the law, a copy of Income tax return or certificate from practicing Chartered Accountant certifying the "Profit & Loss account" should be submitted.	
15	Details of registered partnership deed in case of partnership firm and activities of association and memorandum of association in case of company.	
16	The tender shall be opened of the paid EMD & Tender Fee only.	
17	Party should have to submit duly filled, sign and seal certificate – "A"	

	along with bid.	
18	Party should have to submit duly filled, sign and seal Black list undertaking along with bid.	
19	Party should have to submit duly signed and sealed all tender documents with stamp paper of Rs. 100/- notarized undertaking regarding the declaration form along with bid.	
20	Conditional tender is liable to be rejected. Withdrawal or insertion of conditions unilaterally after opening of tenders will not be permitted unless it so desired by the GSECL.	
21	Party should have to submit the details of the copy of registration number regarding GST along with Technical Bid.	
22	Party should have to submit PAN No. copy.	
23	The Bidder shall have to submit separate tax invoice for work portion as well as for supply portion.	
24	In case of any dispute, the decision of the Chief engineer (Gen), UTPS is final and bound to the bidder.	

Noncompliance of above criteria the technical bid is liable to be rejected. After acceptance of the Technical Bid the Price Bid will be considered for opening.

Signature of contractor
With Rubber Stamp

Chief Engineer (Gen.)
GSECL: TPS: UKAI.

GUJARAT STATE ELECTRICITY CORPORATION LIMITED
UKAI TPS

DETSAILS OF EXPERIENCE OF WORK CARRIED OUT

1.	Name of Party / Firm	:
2.	Postal Address	:
3.	Telephone Number	:
4.	Telegraphic Address	:
5.	Name & Address of organization Where such works were carried During last three years	:
6.	Name of Work	:
7.	Order No & Date (Zerox copies to be attached)	:
8.	Amount of Order	:
9.	Period of Order	:
10.	Whether work continued up to Schedule date of completion or not If so, reason be stated	:
11.	Any other information details party Desired to submit in support of his Experience (Pl. give full details)	:
12.	**Remarks** (Documentary evidence to the above details) including the appropriate Registration certificate as registered and approved contractor should be submitted along with the technical bid which should be pertained to the subject works.	:

Signature of Contractor

CIRCULAR – 1

The following are the major obligations to be fulfilled by the Contractors as per the Contract Labor (R&A) Act 1970 and rule mentioned there under:

1. License to be obtained before starting the Work where number of contract laborers in ten or more.
2. Payment to contract laborers has to be made in presence of IRO/LWO. Wages rates for contract laborers are applicable as per the terms and conditions of the license. The contractor shall have to pay wages to workers as notified by Government of Gujarat., from time to time
3. Every contractor shall have to maintain the muster roll and wages register in respect of his contract labor.
4. Every contractor is required to issue employment card, wages slip and attendance card to their laborers.
5. The contractor has to maintain the register No. 13 containing details of contract labors employed by him.
6. Earned leave register/ card as per the Factories Act. And Rules.
7. Other registers required under Contract Labor Rules and the Factories Act. And Rules.
8. Every contractor shall have to obtain insurance policy in respect of the contract labors engaged by him to cover them under workmen's Compensation Act.
9. To send half yearly return to licensing officer as per Rule 82 (1) as per schedule time.
10. Before starting the work as per the contract awarded to him, he should make arrangement to enter into the agreement in the prescribed format on the stamp paper as applicable. Before fulfilling the above requirement the contractor is instructed not to start the work. The responsibility will be on his head in case he fails.
11. Contractor should posses separate P.F. code on their firm, name otherwise their offer may not be considered.

All the contractors are informed to adhere to the rules and regulations applicable to them, particularly in respect of the laborers engaged by them, the contractor not fulfilling the obligations will not be allowed or continue with work/ not be held qualified to carry out the work at Tal- Songadh Dist. –Tapi, GSECL, Ukai Thermal Power Station.

Signature of contractor
With Rubber Stamp

Chief Engineer (Gen.)
GSECL: TPS: UKAI.

CIRCULAR – 2

It has been directed by our CO that no new labour contract be entrusted to any agency without getting prior approval from the Managing Director /Executive Director the existing contacts, on their expiry, may not be extended without approval of the Member (A) HO, Baroda.

In light of the instructions conveyed by HO, it is necessary to check up the following documents of each and every contractor before awarding the contract to these contactors. For preliminary checking of valid contractors, the following documents are required to be checked by the concerned DE/EE/SE. On their checking the same and by recommending number of labourers, gate pass will be issued by the Factory manager. But before awarding and finalizing any contract, following information must reach to IRO for his confirmation the contracts should be awarded.

1 The contractor should not be allowed to engage ten or more contract labourers without initiating to obtain the labour license under the Contract Labour Act from the Assistant Commissioner of Labour Surat (the said number i.e., ten or more includes Supervisor and other staff.).

2 Number of days of the contract should be informed first before allowing the contractor to start, because on completion of sixty days, the contract labour becomes liable for CPF as per provident Fund Act.1952. Hence, we should avoid such work as far as possible. The contractors also must go for group insurance under WC Act before starting the work.

3 Payment to contract laborers has to be made in presence of IRO/LWO. Wages rates for contract laborers are applicable as per the terms and conditions of the license. The contractor shall have to pay wages to workers as notified by Government of Gujarat., from time to time
The above instructions must be followed scrupulously to avoid labour liabilities under contact Labour.

Signature of Contractor

Chief Engineer (Gen)
GSECL, TPS, Ukai

(To be submitted duly notarized on `. 100/- Non – Judicial Stamp Paper)

DECLARATION FORM

Name of Work:

Tender No/ RFQ No:

1. I/We hereby declare that I/We have carefully studied the entire tender placed on the WEB site and conditions of contract, specifications and other documents of this work mentioned in the tender and abide by the same. Also, I/We hereby agree to execute the same accordingly.

2. I/We hereby abide to execute the contract agreement by downloading the copies of the conditions of contract, specifications and other documents of this work or otherwise I/we will get copy of the same from the office of the tender inviting authority and the same will be acceptable to me/us.

3. I/We hereby accept and confirm that any dispute on this regard shall not be entertained by the tender inviting authority.

4. I/We hereby declare that I/We have visited the work site and fully acquainted myself/ourselves with the local situations regarding materials, labour and other factors pertaining to the work before submitting the tender.

5. I/We hereby confirm that our offer is Un-conditional and without any technical & commercial deviations.

6. Should this tender be accepted, I /We hereby agree to abide by to fulfill all the terms-conditions and provision of the Tender and Contract for Works as applicable and default thereof, to forfeit and to pay to the Gujarat State Electricity Corporation Limited the sums of money due.

7. The full value of the “Earnest Money Deposit” paid herewith should be absolutely forfeited to the Corporation, should I/ we do not deposit the specified amount of specified Security Deposit within 15 Days from receipt of the Letter of Intent.

8. If, I fail to submit all required documents with application or tender copy (in each tender) then my tender will be cancelled, which is binding to me.
9. If, full or part work will be given to me, it will be accepted to me with same terms, rate & conditions.
10. I, _____ proprietor / owner / partner / Authorized Agent of M/s. _____ do hereby also declare and undertake as under:

    a) That I have covered all the eligible employee/s under the Employees’ Provident Funds and Miscellaneous Provisions Act, 1952 and deposited the contributions under my PF Code No. _____, place: _____ for the month/s of my contractual period and as such no amount towards contribution whatever is payable.
    b) I further declare and undertake that in case any liability pertaining to any of my worker, labour, employee/s is/are to be discharged by the principle employer i.e. Gujarat State Electricity corporation Limited, _____Thermal Power Station due to my lapse, I

undertake to reimburse the same or the principle employer is authorized to deduct the same from my dues as payable.

c) I further declare and undertake the legal consequences which may arise in future under the said work order awarded, and I bond myself to resolve the same at the risk and cost of M/s. _____.

11. I/We _____ authorized signatory of M/s _____ here by certify that M/s _____ and their proprietor / any partner / any directors of the firm is not stop deal and / or banned for business dealing and / or black listed by GUVNL and / or their any subsidiary company viz. GSECL / GETCO / DGVCL / MGVCL / UGVCL / PGVCL as well as Government and / or Semi Government company / department.

Seal & Signature of the Bidder
Address:
Phone / Mobile/ Fax. No. & Company's Seal

Technical terms and condition of Bidder.

SIGN OF BIDDER

CHIEF ENGINEER (GEN)
GSECL, UTPS.

1.00.00 : INTENT OF SPECIFICATION:

1.01.00: It is intended to purchase Energy Management System (EMS) to capture energy consumption data from 415 meters distributed throughout GSECL, Ukai Thermal power station (UTPS). The communication will be through ethernet and dedicated OFC network.

2.00.00 :SCOPE OF BIDDER

2.01.00 The scope shall include but not limited to supply, installation & commissioning of;

a) Supply & Installation of application Software for EMS System & sets meter time by taking GPS clock or NTP server input at predefined interval for time synchronisation of meters with existing GPS.
b) Supply (450 No's) & retrofitting of (415 No's) intelligent energy meters.
c) Supply & Installation of new dedicated ethernet and OFC network.
d) Supply & Installation of Computers for EMS System.
e) Supply & Installation of RS 485 to Ethernet converters.
f) Supply & Installation of interconnecting cables.
g) Supply & Installation of Client PC (12 No's) (all client PC should be of industrial grade only) & time synchronise with existing GPS or should remain time synchronise with server & shall have life time valid licence for all softwares.
h) Supply & Installation of Conduits
i) Supply & Installation of CT (92 Set) of different ratio and wiring of CTs and PTs.
j) As mentioned in the subject of tender, approximate sixty (23) nos of existing secure make meters having communication facility are to be connected with Energy Management System & its all associated material & work including memory map of energy meter are in scope of bidder.
k) Preparation of drawings for EMS.
l) Preparation of Cable schedules/root.
m) Preparation of Termination Charts
n) Supervision of Installation works
o) Testing of EMS equipments
p) Pre-commissioning Checks
q) Final successful commissioning
r) System Handing Over
s) Training for Engineer
t) Any other allied and implied work(civil, mechanical, electrical, cabling etc.) required for complete installation of system shall remain in the scope of bidder without extra charge.
u) It is strictly implied that all items software ,hardware ,networking and metering items supplied are in full compliance to the pre-defined specifications.

2.02.00 The bidder/supplier shall be responsible for engineering and functioning of a complete system, fully meeting the intent and requirements of the specifications.

3.00.00 STANDARDS

3.01.00 Unless otherwise specified elsewhere in this specification, all equipment and materials shall be designed, manufactured and tested in accordance with the latest revisions of Indian Standards or British Standards and International Electro-Technical Commission (IEC) Standard available at the time of placement of order. The supplier shall submit the copies of the relevant standards applicable to the Energy monitoring system, energy meters, CTs, PCs and communicating equipment.

3.02.00 Equipment meeting with any other standard, which ensures equal or better quality, may be accepted. Where the equipment conforms to any other standard, the salient points of difference between the standards adopted and the above standards shall be

clearly brought out in the tender. A certified copy of such standard in English version shall be submitted along with the bid.

4.00.00 CLIMATIC CONDITIONS:

4.01.00 The climatic and isoceraunic conditions at site are given below: UTPS

A	Maximum ambient temperature (º C)	50
B	Maximum ambient temperature in shade (º C)	45
C	Minimum ambient temperature in shade (º C)	03
D	Maximum daily average ambient temperature (º C)	40
E	Maximum yearly average ambient temperature (º C)	32
F	Relative humidity (%)	10 to 100
G	Average annual rain fall (mm)	1150
H	Average number of thunder storms (days/year)	30
I	Height above Sea level (Meters)	Not exceeding 1000
J	Maximum wind pressure (Kg/m2)	150
K	Earth quake acceleration	0. 2 g to 0.3 g

4.02.00 The equipments offered shall be capable for continuous satisfactory operation under the above conditions.

4.03.00 Since the equipment offered shall be used in the Thermal power station the offered equipments shall be suitable for such atmosphere.

4.04.00 Equipments covered in this specification shall be suitable for indoor installation.

5.00.00 GENERAL DESCRIPTION OF THE PROJECT

5.01.00 The equipment specified herein will be installed at Ukai Thermal Power Station of Gujarat State Electricity Corporation Limited.

5.02.00 The site is Located at about 90 KMs from Surat. The nearest Railway Station is Vyara of Western Railway.

5.03.00 Ukai thermal power station has 2 (Two) unit of 200MW, 1 (one) unit of 210MW and 1 (one) unit of 500MW .The Generation voltage are 15.75kV and 21.00kV which is stepped up to 220 kV or 400KV by means of 3-phase Power Transformers (GTs). The connection between generator terminals and GT would be by means of bus-duct up to 15.75kV LT side terminals of GT.

5.04.00 The existing meter details as shown herein for the guidance of the bidders; however, bidders are advised to visit the power house and get themselves acquainted with existing system/energy meters & get actual inputs at site.

(i) Technical specifications for LAN networking. **Annexure - C**
(ii) Unit wise detail of existing energy meter. **Annexure-- D**
(ii) List of feeder where CT is required to install. **Annexure—E**
(iii) List of client PC to be installed for EMS. **Annexure—F**

6.00.00 PANEL INTERNAL WIRING

6.01.01 All wiring shall be carried out with 1100V grade single core multi strand flexible copper conductor wires with HRPVC insulation and shall be flame retardant, vermin and rodent proof. The current carrying capacity of wire shall be adequate for the duty

assigned to it considering short circuit condition and shall have sufficient flexibility to facilitate proper termination at any location. Colour coded wires (red, yellow, blue, black & green) shall be used for CT, VT and CVT secondary connections. The copper conductor used for internal wiring be as follows:

a) CT circuit - one 2.5 Sq mm per lead.
b) VT/CVT circuits one 2.5 Sq mm per lead.
c) Energy metering – 2.5 Sq mm per lead for both PT & CT circuits.
d) Auxiliary supply- one 2.5 Sq mm per lead.

6.01.02 Panel wiring shall be securely supported, neatly installed by lacing and tying, readily accessible and connected to equipment terminals and test terminal blocks. Flame retardant, plastic wiring channels/troughs with strap on plastic covers shall be used for this purpose. Sufficient space in channel for modification of wiring shall be kept.

6.01.03 Wire termination shall be made with solder less crimping type of tinned copper lugs which firmly grip the conductor. Insulation sleeves shall be provided at all the wire terminations. Engraved core identification plastic ferrules, marked to correspond with panel wiring diagram shall be fitted at both ends of each wire. Ferrules shall fit tightly on the wire and shall not fall off when the wire is disconnected from terminal blocks.

6.01.04 The bidder shall be responsible for the completeness and correctness of the internal wiring and for the proper functioning of the connected equipment.

6.01.05 The bidder shall provide male-female type connector for CT/PT wiring for draw out type modules.

6.02.00 LABEL

6.02.01 All front mounted equipment as well as equipment mounted inside the panels shall be provided with individual labels with equipment designation engraved. The labels shall be mounted directly below the respective equipment.

6.02.02 All the front mounted equipment shall also be provided tag numbers corresponding to the ones shown in the panel internal wiring to facilitate each tracing of wiring. These labels shall be mounted directly by the side of the respective equipment and shall not be hidden by the equipment wiring.

6.02.03 Labels shall be made of Aluminium anodized plate P.V. Castings. Labels shall have white letters on black background.

6.03.00 INTERIOR LIGHTING

6.03.01 The panel: shall be provided with LED type lighting fixture rated for 240V AC supply, controlled by panel door switch and fuse. The number of such lighting fixtures shall be 1 no. per panel.

6.03.02 The panel shall be provided with 240V, 50Hz. 15 A, 3 pin universal socket with switch. The socket with switch shall be mounted inside the panel at convenient location.

6.04.00 MOUNTING

6.04.01 All equipment on front of panel shall be mounted flush.

6.04.02 Meters shall be mounted such that removal and replacement can be accomplished individually without interruption of service to adjacent equipment.

07.00.00 TESTS

07.01.00 All acceptance and routine test as stipulated in the relevant standards shall be conducted at the place of manufacturer in presence of purchaser's representative without any extra cost. Type test reports should not be less than five years old.

07.02.00 Immediately after finalization of the programme of type/ acceptance/ routine/ testing

the supplier shall give two weeks advance intimation to the purchaser to enable him to depute his representative for witnessing the tests.

07.03.00 No equipments shall be dispatched before all tests and inspection have been carried out according to the approved quality assurance plan unless otherwise instructed by the purchaser.

08.00.00 INSPECTION DURING MANUFACTURING:

08.01.00 The inspection may be carried out by the purchaser at any stage of manufacture. The successful bidder shall grant free access to the purchaser's representative at a reasonable time when the work is in progress. Inspection and acceptance of any equipment under this specification by the purchaser shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications and shall not prevent subsequent rejection if the equipment is found to be defective.

08.02.00 The supplier shall keep the purchaser informed well in advance, about the manufacturing programme so that the arrangement can be made for inspection.

08.03.00 The purchaser reserves the right to insist for witnessing the acceptance routine testing of bought out items.

09.00.00 QUALITY ASSURANCE PLAN:

09.01.00 The bidder shall invariably furnish along with his offer the quality assurance plan adopted by him/his sub-supplies in the process of manufacturing all major equipment/component.

09.02.00 Precaution taken for ensuring usage of quality raw materials and sub-components shall be stated in the quality assurance plan.

09.03.00 The bidder should specifically express their consent to accept additions, revisions to their quality assurance plan to meet the purchaser's requirements if needed. The final quality assurance plan to be adopted, with mutual consent, shall be decided after discussion with successful bidder.

10.00.00 PERFORMANCE GUARANTEE:

All equipment supplied against this specification shall be guaranteed for a period of **24 months** from the date of receipt at the destination store centre. However any engineering error, omission, wrong provision, equipment failure etc., if found during actual commissioning of the equipment shall be attended by the bidder free of cost.

11.00.00 DEVIATIONS

No deviations to this specification shall be acceptable unless specifically indicated in the offer in the relevant schedule. All deviations shall be clearly spelt out by the Bidder and the price implications thereof. GSECL at their discretion will decide regarding acceptance of deviation. Bidder must furnish List of Technical Deviations mentioning the specification clause nos. against which deviations have been sought for. Compliance with this specification will be taken for granted in absence of any specific mention of deviations in the said list of deviations. **Any implied deviation or any deviation mentioned elsewhere in the offer shall not be considered**.

12.00.00 DOCUMENT SUBMISSION:

12.01.00 All drawings/documents submitted by supplier shall be in sufficient detail to indicate the type, size, arrangement, weight (as applicable) the external connections, fixing arrangements required, the dimensions required for installation and interconnections with other equipment and materials, clearances and spaces required between various portions of equipment and any other information specifically requested.

12.02.00 Drawings / Documents submitted shall be signed by responsible representatives of the Bidder and all drawings shall be of A-3 size. (297mmX420 mm). All dimensions on drawings shall be in Metric Units, unless otherwise specified. The details in the drawings shall be in English language only.

12.03.00 In addition to the information provided on drawings, each drawing shall carry a revision number, date of revision and brief details of revisions arrived out. Wherever any revision is carried out, correspondingly revision number must be updated. All revisions carried out shall be highlighted on the drawing and a Separate sheet furnished stating the reasons for such revision. A note stating drawing is generally revised is not acceptable.

12.04.00 Drawings submitted by the Bidder for approval will be checked / reviewed by the Purchaser' and comments, if any, on the same will be conveyed to the Bidder. It is the responsibility of the Bidder to incorporate correctly all the comments conveyed by the Purchaser on the Bidder's drawings. The drawings which are approved with comments are to be resubmitted to the Purchaser for purpose of records. Such drawings will not be checked / reviewed by the Purchaser to verify whether all the comments have been incorporated by the Bidder. If the Bidder is unable to incorporate certain comments in his drawings he shall clearly state in his forwarding letter such non-compliance along with valid reasons and justification.

12.05.00 Any work performed or material ordered by the Bidder prior to receipt of drawings stamped 'Approved with comments as noted' by the Purchaser shall be at the risk of the Bidder. After print of any drawing has been returned 'Approved', the Bidder may release the parts covered by the drawing, for production / construction.

12.06.00 Reproducible, where called for in the Drawing Submission Schedule, shall be submitted after the approval of drawings. These should be of good quality and capable of producing clear and legible prints.

12.07.00 Upon completion of the installation, the Bidder shall furnish a complete set of drawings on reproducible form on which the Bidder shall make in a neat and accurate manner, a complete record of all changes and revisions to the original design, as installed in the completed work. These drawings shall be submitted to the Purchaser.

12.08.00 Drawings prepared by the Bidder and approved by the Purchaser shall be considered as a part of the Contract Specification. However, examination and approval of the drawings by the Purchaser shall not relieve the Bidder of his responsibility for engineering, design, workmanship, materials and construction under the Contract.

12.09.00 If, at any time before the completion of the work, changes are made necessitating revision of approved drawings, the Bidder shall make such revisions and proceed in the same routine as for the original approval.

12.10.00 The drawing and documents which are not subject to approval shall be stamped "FOR INFORMATION". However, the Purchaser shall reserve the right to comment.

12.11.00 The Bidder shall prepare and submit to the Purchaser, operation and maintenance manuals in accordance with the Purchaser's requirements and in sufficient detail, for the Purchaser to get familiarized with the equipment and to enable him to operate, maintain, dismantle, reassemble, adjust and repair the equipment in a safe and efficient manner. O&M Manual shall contain

i) Vendor Contact Details
ii) Storage Instruction
iii) Erection & Commissioning Instruction
iv) Operating Procedure /Instruction and Maintenance Schedule
v) List of Bought out component & sub vendor's addresses
vi) Technical Data Sheet

vii) Leaflets of Bought Out component
vii) Drawings etc.

12.12.00 A separate section of the manuals shall be devoted to each size/ type of equipment and shall contain a detailed description of construction and operation, together with all relevant pamphlets, catalogues, drawings and a list of parts with procedure for ordering spares. Maintenance instructions shall include checking, testing and replacement procedures to be carried out to ensure trouble-free operation.

12.13.00 All documents including drawings, data sheets, erection and commissioning manuals, O & M manuals shall be provided on electronic media viz. CD's. Each electronic media shall be of high quality and suitable for long-term storage. The reproduction from media shall be of good quality.

13.00.00 DRAWINGS / DATA / DOCUMENTS TO BE SUBMITTED BY BIDDER ALONGWITH THE BID

13.01.00 As a minimum, the bidder shall furnish the following in two sets failing which the bids shall be rejected.

i) Typical general arrangement drawing of the equipment showing overall dimensions.
ii)Typical schematic drawing in respect of Panel , EMS scheme offered looking to the scope , visit at site , discussion with GSECL etc. on the basis of which technical scrutiny will be made.
iii) Catalogues for equipment and fittings & accessories
iv) Operation & Maintenance Manual.
v) Schedules as per Section 3.00.00.
vi) Quality assurance plan
vii) Type test reports of similar rating equipment
viii) Experience certificates of supply of identical types of equipment
ix) List of sub-vendors for purchaser's approval.

14.00.00 DRAWINGS / DATA / DOCUMENTS TO BE SUBMITTED BY SUCCESSFUL BIDDER

14.01.00 After issue of detailed purchase order, the successful bidder shall submit within four weeks, four sets of complete drawings along with detailed bill off material for approval. In normal practice, the documents submitted for the approval will be commented upon or approved if in order, within 15 days from the date of receipt of the same.

14.02.00 Before dispatch of equipments to consignees, the supplier is required to submit sets of following drawings / documents in suitable files.

a) Control schematics and wiring diagrams.
b) Operation and maintenance manual.
c) Commissioning manual.
d) Catalogues for all bought out items.

The manuals and test reports should be submitted in bound form suitable for long storage with the necessary information printed on the cover page as well as back for easy traceability. The documents not submitted in the above manner will not be accepted.
All Erection, operation & maintenance manuals & drawings shall be furnished in reproducible form (CDs) also.

15.00.00 DEMONSTRATION

During technical scrutiny of the bid purchaser may ask to give demonstration of offered meter and EMS. The bidder shall demonstrate the same within two weeks of intimation from purchaser however demonstration do not make him eligible for the supply/work order and the bidder may be liable for rejection for his tender without assigning any reason/s.

16.00.00 PACKING AND TRANSPORT:

16.01.00 All equipment/material shall be suitably packed for transport, carriage at site and outdoor storage during transit. The contractor shall be responsible for any damage to the equipment during transit due to improper and inadequate packing. The cases containing easily damageable material shall be very carefully packed and marked with appropriate caution symbols i.e. `FRAGILE' `HANDLE WITH CARE', `USE NO HOOK' etc. The contents of each package shall bear marking that can be readily identified from the package list and packing shall provide complete protection from moisture, termites and mechanical shocks etc.

16.02.00 Wherever necessary proper arrangement for attaching slings for lifting shall be provided and all packages clearly marked with gross weight, signs showing `UP' and `DOWN' sides of boxes, contents of each package, order no. and date, name of the plant of which the material in the package forms part of and any handling and unpacking instructions considered necessary. Any material found short inside the intact packing cases shall be supplied by the manufacturer/supplier without any extra cost.

16.03.00 Bidder shall ascertain, prior to shipment, from concerned authorities, the transport limitations like weight and maximum allowable package size for transportation. Fragile material such as meter, PC, Laptop, Instruments and other glass material shall be carefully covered with shock absorbing protective materials, such as thermocol, silica gel or equivalent moisture absorbent material in small cotton bags shall be placed inside the packing wherever necessary.

16.04.00 Each consignment shall be accompanied by a detailed packing list containing the following information.

a) Purchase order reference.
b) Name of consignee
c) Details of consignment
d) Destination
e) Total weight of consignment
f) Handling and unpacking instructions.
g) Bill of materials indicating contents of each package
h) Sign showing upper/lower side of the crate.

17.00.00 TRAINING:

17.01.00 The successful bidder shall be required to provide facility for training, at no extra cost to the purchaser's ten engineers to be nominated by the purchaser for a period of three days at his works where the equipment offered shall be manufactured or at UTPS site. The training shall cover procedures of installation, testing, commissioning, operation, maintenance and trouble shooting on the meters and EMS.

17.02.00 If the meter and EMS offered, is being designed and manufactured in collaboration with any other manufacturer, the supplier shall provide facilities for the in-plant training in the collaborators works.

17.03.00 In case of training within India, the to and fro travel expenses, lodging and boarding charges as well as allowances for out of pocket expenses in respect of the trainees, shall be borne by the Purchaser. However, the supplier shall provide suitable

facilities for lodging as well as to and fro transport to place of training from the hotel/guest house of trainees.

17.04.00 The programme of the training shall be mutually discussed and finalized by the purchaser with suppliers.

18.00.00 SUPERVISORY INSTALLATION & COMMISSIONING:

The bidder shall depute their Engineers, technicians to the site for carrying out the retrofitting work, testing and commissioning of meters, CTs and schemes etc.

19.00.00 GUARANTEED TECHNICAL PARTICULARS

The bidder shall fill Guaranteed Technical particulars indicated in **Annexure-15** which form part of the bid specification and offer. If the Guaranteed Technical particulars are not submitted duly filled in with the offer, the offer is likely to be rejected.

20.00.00 GUARANTEE FOR MAINTENANCE SPARES AND SERVICES:

The bidder shall guarantee for supplying maintenance spares and services as well as repairing of meter and EMS system for a period of the life expectancy of 15 years & shall have to submit the assurance with liability in this regards on the non judicial stamp paper of Rs 100/-(Rupees Hundred only).

After commissioning and handing over , one year guarantee/warrantee is in the scope of bidder and 5 years subsequent O & M contract for full system.

SIGN OF BIDDER **CHIEF ENGINEER(GEN)**
REQ No. : 44018 **GSECL, UTPS.**

CONTENTS

SIGN OF BIDDER
REQ No. : 44018

CHIEF ENGINEER (GEN)
GSECL, UTPS.

TECHNICAL BID

(This is Un-priced Schedule to be attached with Technical Bid Only)

Tender No. : T-
RFQ No. :

Sub : Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters of Ukai TPS.

Part-I : Supply

Sr. No.	Description of Material	Qty. Reqd.	Unit
1	Supply of Energy Management System	1(One)	Set

Part-II: Works

Sr. No.	Description of Works	Quantity	UOM
2	Installation & Commissioning of the Energy Management System	1(One)	Lumsum

Consideration of Lowest party L1= Part: 1 (Supply) + Part: 2 (Works).

Please mention amount of tax in Rupees not in percentage while filling up Online Price bid.

- **Part-I [Supply] -** Please quotes the rates by indicating GST, P & F, freight etc.
- **Part-II [Works] -** Please quote the rates by _____% exclusive of GST. GST will be paid by GSECL extra as per Govt. rules & regulations.

ANNEXURE – A

BILL OF MATERIALS

Sr.No	Item	UOM	Qty
A	**Energy Meters**		
1	HT Meter 3P4W Class 0.2 with Ethernet Port	Nos.	263
2	HT Meter 3P4W Class 0.2 with Ethernet Port - Spare Meters	Nos.	20
3	LT CT Meter 3P4W Class 0.5 with Ethernet Port	Nos.	152
4	LT CT Meter 3P4W Class 0.5 with Ethernet Port - Spare Meters	Nos.	15
	Total Meters		**450**
B	Software for Online Data Monitoring and Report generation with 25 Clients License :	No.	1
C	**Resin Cast Ring Type LT CT of Class 0.5**		
1	Current Transformers	Set (1 set = 3 Nos of CTs)	92
D	**Communication & other Miscellaneous Hardware**		
1	Desk Top PC with Windows Professional Licensed OS Processor :Intel i7, 3.2 Ghz, 04 Core Memory : 08 GB RAM HDD: 300 GB Warranty: 3 years OS: Windows 10 OEM Display Screen size & type: 22" or higher wide range TFT/LCD , Flat Monitor No. & type of serial ports: 2 Nos. No. & type of parallel ports: 1 Nos No. of USB ports: 4 Nos (Min.). Licensed OS to be supplied. Acrobat reader for PDF file reading	Nos.	12
2	3 Core 2.5 Sq. mm M/S PVC insulation aromoured cable	Mtrs.	9,300
	Total Hardware for and accessories for Optical Fiber Network		
E	**OFC Hardware** **All Below hardware shall Strictly be in Compliance with the Specifications given in Document Technical Specification for Network Passive Components**		
E1	LAN Cable for Meter Communication, CAT6 A 10G Shielded LSZH U/FTP Cable Technical Specification Annexure E- Clause E1 Approved Make : Systimax / Molex / Panduit / Simons	Nos.	45
E2	SITC of PowerCat 6 Jack RJ45 568A/B STP/FTP as per Technical Technical Technical Specification Annexure E- Clause E2/E3 Approved Make : Systimax / Molex / Panduit / Simons	Nos.	500
E3	SITC of Synergy Wall Plate 1 Port - 86mmx86mm- Including Back Box / Co-Box Technical Specification Annexure E- Clause E2/E3 Approved Make : Systimax / Molex / Panduit / Simons	Nos.	500
E4	structured Network termination between LAN and Meter, Cat 6 STP/FTP 568A/B LS0H - 2m as per Technical Technical Specification Annexure E- Technical Specification Annexure E-	Nos.	500

	Clause E4Approved Make : Systimax / Molex / Panduit / Simons		
E5	SITC of 24 Port Patch Panel RJ45 568A/B STP/FTP C6 - 1U as per Technical Technical Specification Annexure E- Clause E5 Approved Make : Systimax / Molex / Panduit / Simons	Nos.	36
	FIBER PART		
E6	Optical Fiber Cable 12F Outdoor - Armoured Loosetube Construction Single Mode as per techincal specification Approved Make : Systimax / Molex / Panduit / Simons	Mtrs.	15,000
E7	Intelligent Singlemode 24P Duplex LC Fibre Patch Panel Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	2
E8	Intelligent OFPC LC-LC DUP SM OS1 LS0H - 3mm Patch cords Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	12
E9	24 Port Configurable Fibre Sliding Drawer - Unloaded ComponentsApproved Make : Systimax / Molex / Panduit / Siemon	Nos.	23
E10	LC Duplex 12 Fibre SM Adapter Plate - Blue, With Splice Tray and Blanking Plates as per requirement(s) Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	46
E11	LC type Pigtail SM 1.5 mts Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	552
E12	LC-LC type Patch cords SM 3 mts Duplex Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	310
E12.a	SITC of Splice tray Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	23
E12.b	SITC of Blank plates Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	46
	Intelligent Passive Infrastructure Solution Scanner & software		
E13	Intelligent Scanner 576 Channel , for Intelligent Fiber Patch Panel Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	2
E14	Intelligent Scanner 96 Channel PP License : License from Authorized OEM to be provided Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	1
E15	Intelligent Server Application License (Same make of Passive Components) - License from Authorized OEM to be provided	Nos.	1
E15.a	SITC of CAT 6 Patch cord, 2 Mtr, Orange -LSZHT Approved Make : Systimax / Molex / Panduit / Siemon	Nos.	2
	ACTIVE PART		
E16	Core Level: Advance Layer 3 Fully Managed 24 Ports Combo Gigabit Stackable Switches.Network Switch : Layer 3 Enterprise Managed Network with Combo 24 Base-X SFP Ports / Base-T Copper Ports + 4 SFP+ Ports & Should have Additional Module Slot to Support 2x40G Slots. The Switch shall be Supplied with all the Required Licenses for L3 Features.The Switch shall be Stackable & shall be used in Active-Active Failover Mode at the Central Location. The Required Stack Module / Stack Cables shall be Supplied.Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	Nos.	1
E17	Gigabit Enterprise 8 Port 10/100/1000 Base-T Copper Ports + 2 SFP Ports Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃The Edge Level: Enterprise Grade layer 2 Fully Managed 8 Ports Gigabit Switches.	Nos.	2

	Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade		
E18	Gigabit Enterprise 16 Port 10/100/1000 Base-T Copper Ports + 2 SFP Ports Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃ Edge Level: Enterprise Grade layer 2 Fully Managed 16 Ports Gigabit Switches. Approved Make : Allied Telesis / Cisco / Juniper / Arista	Nos.	6
E19	Gigabit Enterprise 24 Port 10/100/1000 Base-T Copper Ports + 4 SFP Port Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃ Edge Level: Enterprise Grade layer 2 Fully Managed 24 Ports Gigabit Switches. Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	Nos.	12
E20	1000 BaseLX (10km) SFP Module (Transciever)The SFP Module (Transciever) shall Preferably be of the Same make as that of the Network Switch. Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	Nos.	13
E21	License key for NMS Enterprise Edition 100 Starter. Supports 100 managed nodes (or subscriber CPEs) and 5 NMS clients. Approved Make : Allied Telesis / Cisco / Juniper / Arista	Nos.	56
E22	Server for NMS Software & Intelligent Passive Infrastructure Solution SoftwareApproved Make : Dell / HP / IBM	Nos.	1
	NETWORK RACK PART		
E23	Wall Mount 12U x 600mm W x 500mm D ,Front Glass Door (tinted, Toughened) with Lock & Key, with 2 Fan, 5 Socket Power strip with Fuse, MCB, Hardware screw packet - 1 nos and pvc box type cable Manager - 2 Nos Approved Make : Valrack / WQ / APW	Nos.	2
E24	Floor Standing 22U x 600mm W x 800mm D ,Front Glass Door (tinted, Toughened) with Lock & Key, with 2 Fan, 5 Socket Power strip with Fuse, MCB, Hardware screw packet - 1 nos and pvc box type cable Manager - 4 Nos Approved Make : Valrack / WQ / APW	Nos.	2
E25	42U, 800 x 1000 MM Depth Floor standing Perforated Door Rack with 10 Socket 5/15 AMP - PDU with Fuse & MCB- 2 Nos, Hardware screw Pkt - 1 Nos, 4 Nos of FAN, Hard ware tray - 1 Nos. Approved Make : Valrack / WQ / APW	Nos.	2
	PIPE ACCESSORIES		
E26	Supply of 25 mm HDPE for Cat6 Cabling along with proper fittings & Clamps	Nos.	8,000
E27	Supply of 32 mm HDPE for Cat6 Cabling along with proper fittings & Clamps	Mtrs.	3,000
E28	Supply of 40 mm HDPE for Cat6 Cabling along with proper fittings & Clamps	Mtrs.	2,000
E29	Supply Of 25 mm ISI HDPE Pipe for fiber laying on wall with proper clamps/underground .	Mtrs.	15,000
E30	Supply Of 1 inch G.I. ISI marked Pipe	Mtrs.	100
E31	25mm Flexible pipe	Mtrs.	1,000

F	**Data Center H/W**		
1	Application serverIntel Xeon E5-2600 v2 or E5-2600 v3 series Processor. Server should provide an intelligent socket that would ease the installation of CPU to avoid errors caused by mis-inserting processors during install or upgrade, 2 processor scalable,3.0Ghz or Higher, 16 Core, 8MB Cache or higher, 4x8GB Memory (Proposed memory should support reliably identify and verify whether installed memory has passed the rigorous OEM qualification and testing process to increase system reliability),2x600GB SAS Hard disk drive should support "Do Not Remove" caution indicator to avoid human errors in replacing failed HDD Hot Swap, DVD RW, Integrated RAID 0,1Display Screen size & type: 22" or higher wide range TFT/LCD , Flat MonitorOS : Windows Server 2012 Std Edition	No.	1
2	Database server , (Main and backup) Intel Xeon E5-2600 v2 or E5-2600 v3 series Processor. Server should provide an intelligent socket that would ease the installation of CPU to avoid errors caused by mis-inserting processors during install or upgrade, 2 processor scalable, 3.0Ghz or Higher, 8 Core, 12MB Cache or higher, 4x8GB Memory (Proposed memory should support reliably identify and verify whether installed memory has passed the rigorous OEM qualification and testing process to increase system reliability, 4*500GB Hot Swap SAS/SATA Hard disk drive should support "Do Not Remove" caution indicator to avoid human errors in replacing failed HDD, DVD RW, RAID 0,1, 5 OS : Windows Server 2012 Std Edition	Nos.	1
3	Laptop - PC	Nos.	1
4	SQL Server 2012 Standard Edition- CAL based	No.	1
5	Windows serer 2012 standard addition	Nos.	25
6	Ethernet Switch 24 Port , managed	No.	1
7	Network rack for Server & Switch (Size : 42U)	No.	2
8	Firewall :Firewall Throughput-950 Mbps, Firewall Throughput (Packets Per Second) 180 Kpps, Concurrent Sessions (TCP) 900,000, New Sessions/Second (TCP) 15,000, IPsec VPN Throughput (512 byte) 1 75 Mbps, Gateway-to-Gateway IPsec VPN Tunnels 200, Client-to-Gateway IPsec VPN Tunnels 250, SSL-VPN Throughput 35 Mbps, Concurrent SSL-VPN Users (Recommended Maximum, Tunnel Mode) 80 SSL, Virtual Domains (Default / Maximum) 5 / 5, High Availability Configurations Active/Active, Active/Passive, Clustering	No.	1
9	Connecting cables , Connectors , other miscellaneous hardware required to complete this metering scheme at Central Station	Lump sum	1
10	Online UPS :- 5 KVA range: External batteries with 30 Min. backup , rack for batteries.	No.	1
11	Laser Printer B/W, Laser A-4, Heavy Duty-minimum printing per month : 3500 per month	No.	1
G	**Supply Total**		
H	**Installation**		
1	Installation of Meters (including Panel cutting)	Nos.	415
3	Installation of LT CTs - Per metering Point set of 3 CTs , thread	Nos.	92

	through in existing power cable		
4	Installation & commissioning of OFC Network with all required switches and assoicated hardware, CTA - 6 Cable network for TCPIP Network, PCs , Switchs , Racks & connection with energy Meters.	Lumpsum	1
5	Data Center : Installation & commissioning of Server, UPS, Firewall , Software etc. and linking with all HT / LT remote end meters.	Lumpsum	1
8	Soft Soil Digging with Refilling with Brick and Sand	Per Mtrs.	500
	Hard Soil Digging with Refilling with PCC	Mtr.	100
	OTDR Testing	Mtr.	550

(Shall be furnished with commercial bid)

SIGN OF BIDDER
REQ No. : 44018

CHIEF ENGINEER (GEN)
GSECL, UTPS.

ANNEXURE - B

B. Technical Specifications of digital multifunction energy meter

We require digital multifunction energy meter for three phase four wire system.

1. Meter accuracy Class 0.2s, Full Compliance as per IS14697, IEC62053-22
   (Note : Accuracy requirements strictly in line with IS14697, To ensure full compliance to class 0.2s the meter should confirm to Class 0.2s accuracy class for both active and reactive energy measurement(s).)
2. Operating voltage range- the offered meter's operating range shall be + 20 % to - 30% of normal Voltage.Viz.100V To 415V (Line Values)
3. Operating frequency range – 50 Hz with +/- 5 % Tolerance.
4. Auxiliary Power Supply : 80-300V AC/DC
5. Burden : As per IS14697 Class 0.2s Burden must not exceed 8VA including auxiliary
6. The meter will have a built in Real Time Clock or GPS or have synchronizing facility.
7. Mounting of Meter: Flush mounted.
8. Communication baud rate range, 9600 – 38400 bps
9. To allow minimum spares, a common meter must be provided which can be configured at site for CT Ratio (1A or 5A) and PT Ratio.
10. Suggested meter dimensions –
    - 10.1 Dimension (WXHXD): (a) 96X96X65 mm --- Without module/attachment.
    - 10.2 96X96X110 mm --- With module/attachment.
    - 10.3 Cut out Size: 92X92 mm.
11. Meter must be provided with Calibration LED for accuracy testing on site, the LED could be configured for active or apparent measurement(s).
12. Meter shall withstand Maximum rated current up to 120% Ib for continuous rating.
13. Meter short time over current capacity: 20 x Imax for 1 Sec, or 7 x Imax for 10 Sec.
14. Meter shall Starting registering energy at - 0.1 %Ib
15. Effect of self heating - as per relevant standard.
16. Effect of external magnetic field- as per relevant standard.
17. Meter must comply with following environmental standards.
    - 17.1 IP 54 Compliance for Front Fascia,
    - 17.2 IP20 Compliance for Terminals.
    - 17.3 Impulse Withstand capacity : 6 Kv
    - 17.4 Insulation : 4 Kv RMS @ 50Hz for 1 Min.> 100 M-ohms
    - 17.5 Humidity : 95% non-condensing.
18. Suitable adaptor plate (if necessary) to be provided and technical literature for above meter to be furnished along with supply.
19. Necessary software for PC communication along with data cable to be provided with meter.
20. Communication : Modbus over Ethernet.
    - 20.1 Meter should have Ethernet Port for direct communication over TCP/IP.
    - 20.2 Preferred communication mode is Modus TCP over Ethernet port.
21. To provide for future expandability and requirements It is preferred if Meter has additional facility for pulse I/o and/or analog output modules.
22. Meter must have Password protection for setup mode.
23. Load Survey: 30 days for at least 6 parameters @ 30 minutes integration period. IP
24. Failure Data for determination of system conditions: Missing Potential, Voltage unbalance, Current missing, Current Unbalance, Reversal of Current.
25. Power On / Off Hours.
26. Load On / Off Hours.
27. Feeder interruption count in absence of auxiliary power.
28. THD Voltage current and power.
29. DISPLAY

29.1 The Meter shall have Large 4- line 7 digit display with bright green backlit. The display must have quadrant identification facility and bar-graph for instantaneous power-level indication.

29.2 The meter shall have two different modes for display:
Auto Display Mode - Parameter scrolls as per predefined scrolling time
Push Button Mode - Parameter scrolls manually on pressing push button.

29.3 Minimum parameters required

- Real Time
- Date
- RMS Values of per phase Voltage.
- Phase Current for each phase
- RMS values of Line voltage (RY, BY & BR)
- Instantaneous MW
- Instantaneous Average Power factor
- Instantaneous Supply Frequency
- Instantaneous MVAr
- Cumulative MWh Export & import(Energy)
- Cumulative MVArh (Lag) while MWh Import
- Cumulative KVArh (Lead) While MWh Import
- Cumulative MVArh (Lag) while MWh Export
- Cumulative KVArh (Lead) While MWh Export
- Cumulative MVAh

CHIEF ENGINEER
GSECL, TPS, UKAI

ANNEXURE - C

Technical specifications for LAN networking.

TECHNICAL SPECIFICATION FOR NETWORK PASSIVE COMPONENTS

OEM Prequalification Criteria for Network Passive Components

1. OEM should have sales and Service office in Gujarat since last 5 Years.
2. OEM products should be certified with UL / ETL. Certificate should be submit along with Bid.
3. OEM should have manufacturing facility available in India to have better availability. We may ask for factory testing reports / visit.
4. OEM should provide MAF, technical compliance and data sheet to bidder along with bid on their letter head.
5. OEM has to certify the design which will be prepare by bidder.
6. OEM has to provide 25 years warranty certificate after successfully implementation of the project.
7. Bidders should have min. 2 engineers on roll which has to be certified on OEM passive products to support at design level as well as to avail 25 years warranty from OEM.
8. Manufacturer should be a leading participant in Standards organizations including EIA, TIA and IEC which are key standards organizations for Structured cabling
9. Manufacturer should have world class Test Lab and R&D facilities for testing interconnect solutions and should provide details of the same.
10. Should have local manufacturing facility & presence in India from 15 yrs. Or more
11. OEM should have at least one project at Gujarat with similar intelligent passive architecture.

- **GTP Item D1 : Technical Specification for Communication & other Miscellaneous Hardware**

1. Desk Top PC with Windows Professional Licensed OS

Minimum Technical Specification for Desk Top PC Windows Professional Licensed OS

- Processor :Intel i7, 3.2 Ghz, 04 Core
- Memory : 08 GB RAM
- HDD: 300 GB
- Warranty: 3 years
- OS: Windows 10 OEM (Windows Professional Licensed OS)
- Display Screen size & type: 22” or higher wide range TFT/LCD , Flat Monitor
- No. & type of serial ports: 2 Nos.
- No. & type of parallel ports: 1 Nos
- No. of USB ports: 4 Nos (Min.).
- Licensed OS to be supplied.
- License: Microsoft office Standard Edition for each Client.

- **GTP Item D2 :** 3 Core 2.5 Sq. mm M/S PVC insulation armored cable

Core 2.5 Sq. mm M/S PVC insulation armored cable, Relevant Product with Compliance to IS7098

- **GTP Item E1 : LAN Cable for Meter Communication**
  CAT6 A 10G Shielded LSZH U/FTP Cable

Sr no	Description		Compliance (Yes/No)
1	Approved Brand	Molex / Systimax / Siemon / Panduit	
2	Type	shielded twisted pair cabling system with pair enclosed in laminated aluminum foil, ETL verified to TIA/EIA-568-C.2 Category 6A standard	
3	Network support	Supports high speed data network applications such as 10-Gigabit Ethernet (10GBASE-T)	
4	TIA / EIA 568-C.2	ETL Verified	
5	IEEE 802.3	Zero-bit Error, ETL verified	
6	Warranty	25-year systems warranty; Warranty to cover Bandwidth of the specified and installed cabling system, and the installation costs. Site certificate must be issued by OEM.	
7	Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR for 4-connector channel	
8	Manufacturer	All passive cabling must be from same OEM	
9	Conductors	23 AWG solid bare copper	
10	Insulation	Polyolefin	
11	Jacket	LS0H	
12	Approvals	ANSI/TIA/EIA-568-C.2 ISO/IEC 11801 A1.1 ETL independent testing	
13	Packing	Box of 500 meters	
14	Impedance	100 Ohms + / - 6@ 1-500 MHz	
15	Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR	
16	Delay Skew:	45 nS/100 max @ 1-500 MHz	
17	Impedance:	100 ± 15 Ohms	

18	Conductor DC Resistance:	72 Ω/km max	
19	NVP	75%	
20	Propagation delay:	514 ns/100m max@ 1-500MHz	
21	Pulling force	50 N/mm2 max	
22	Flame Test	IEC 60332-1	
Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.			

- **GTP Item E2/E3 : Cat6A Information outlets with Faceplate Single Port with Gang Box**
  - ✓ **Item E2 : RJ-45 Jack for Meter Communication : Strucutred network Termination between LAN and Meter, Copper Port at Meter side**
  - ✓ **Item E3 : Faceplate with Gangbox for Copper Port at Meter side : Structured network Termination between LAN and Meter**

❖ Cat6A Information outlets with Faceplate Single Port with Gang Box

Characteristic	Min. Required Specification	Compliance (Yes/No)
Approved Brand	Molex / Systimax / Siemon / Panduit	
Features	Single Gang square plate, 86mmx86mm	
	Write on labels in transparent plastic window – supplied with plate	
	Screw hole covers – to be supplied with plate	
	Plug in Icons – Icon tree – to be supplied with plate	
	Should be able to support variety of jacks – UTP, STP, Fiber, Coax etc.	
CAT 6A SHIELDED INFORMATION OUTLET		
Characteristic	**Min. Required Specification**	
Features	Cat 6A Data jack should offer superior alien crosstalk suppression, excellent insertion loss, and provides enhanced electromagnetic interference (EMI) protection by utilizing robust die cast zinc alloy jack body housing.	
	CAT 6A shielded jack should also provide spring loaded shutter that will not only protect it from dust and contaminates, but the ingenious spring loaded design should also ejects improperly seated patch cords.	
	The shielded jack is dual colour coded for either 568A or 568B wiring schedules.	
	Cat 6A Shielded Jack has tobe designed for high-speed 10GB data transmission.	

	This system should compliant with the ISO/IEC 11801 Amd 1 and TIA-568-C.2 requirments for the support of 10GBASE-T transmission.	
	Mechanical Characteristics RJ45 Connector Housing: Zinc Alloy plated Bright Ni/Cu Operating Life: Minimum 750 insertion cycles Contact Material: Copper Alloy Contact Plating: 1.25 micrometers Au/Ni Contact Force: 100g minimum Plug Retention Force: 6.8kg minimum	
	IDC Connector Housing: Thermoplastic, UL94V-0 Operating Life: Minimum 20 reterminations Contact Material: Copper Alloy IDC Contact Plating: Matte Tin Contact Force: 100g minimum Wire Accommodation: 22-24 AWG solid	
	Electrical/Optical Characteristics Interface Resistance: 20mΩ Initial Contact Resistance: 2.5mΩ Insulation Resistance: >100MΩ Minimum backbox requirement: 44mm	
	RoHS Compliant	
	Standards & approvals: TIA-568-C.2 Augmented Category 6 ISO 11801 Amd 1 Class EA IEC 60603-7 FCC Subpart F 68.5 ETL independant testing UL-1863	

- **GTP Item E4 : Cat 6A Shielded Patch Cords for Meter Side and Rack Side, structured Network termination between LAN and Meter**
- **Cat 6AFTP Patch cord, 1/2 Meter:-**

CAT 6A Patch cord		
Approved Brand	Molex / Systimax / Siemon / Panduit	
Characteristic	**Min. Required Specification**	**Compliance (Yes/No)**
Features	Cat 6A Shielded Patch Cords should be with support high speed data networks for 10-Gigabit Ethernet (10GBASE-T) applications. The patch cable should be made from high quality shielded four pair 26AWG stranded wire. Available in a range of colors and lengths, Cat 6A shielded patch cords should be preterminated with RJ45 shielded plugs and should have over molded anti-snag strain relief boots	

	This system should be compliant with latest ISO/IEC 11801 A1.1 draft and ratified TIA/EIA 568-C.2 for the support of 10G BASE-T.	
	Conductor Size: 26AWG stranded bare copper Screen material: Aluminium/polyester shield with tinned copper drain wire Max OD: 6.5mm Jacket: PVC Temperature Range: -20℃ to +60℃	
	Mechanical Characteristics Operating Life: Minimum 750 insertion cycles Contact Material: Copper Alloy Contact Plating: 1.25 micrometers Au/Ni Plug dimensions & tolerances compliant with FCC Part 68 IEC 60603-7	
	Electrical Characteristics Max Voltage: 150 VAC (max) Max Current: 1.5A @ 25℃ Operating temperature: -40°to 85℃	
	Standards & approvals: TIA/EIA-568-C.2 ISO/IEC 11801 A1.1 FCC Subpart F 68.5 IEC-603-7 UL Listed UL-1863 CSA C2.2	

- **GTP Item E5 : 24 port Shielded Jack panel, 1U for Catergory-6A UFTP Cable**
  - **Loaded Panel, 24 port Shielded Jack panel, 1U for Catergory-6A U/FTP Cable :-**

24 & 48 PORT SHIELDED JACK PANEL		
Approved Brand	Molex / Systimax / Siemon / Panduit	
Characteristic	**Min. Required Specification**	**Compliance (Yes/No)**
Features	The 24 Port (1U) and 48 Port (2U) Cat 6A Shielded Patch Panels should be made from robust sheet metal. These panels should be also supplied with robust removable rear cable management trays (Rod / pipe should be not acceptable) for cable strain relief and neat cable dressing. Port numbering should be provide on the front and rear of the panel and individual ports can be color coded using connector icon labels for site specific network administration	
	Allow for a minimum of 200 re-terminations without signal degradation below standards compliance limit.	
	PowerCat 6A Datagate Shielded connector included	
	It should be with IDC V-shaped contacts that flex not fatigue when terminated	
	This system should be compliant with the latest ISO 11801 AMD 1 Class EA and TIA-568-C.2 Cat 6A for the support of 10G BASE-T	

	Cat 6A Shielded Patch Panel should have Shielded jack connector. This shielded connector should offer superior alien crosstalk suppression, excellent insertion loss, and provides enhanced electromagnetic interference (EMI) protection by utilising robust die-cast zinc alloy connector body housing. This shielded connector should have spring loaded shutter to protect it from dust and contaminates.	
	The shielded connector should be dual colour coded for either 568A or 568B wiring schedules.	
	Shutter on the each jack port is mandatory of patch panel, shutter should be in-out mechanism for easy operation	
	Patch Panel Characteristics Material: CRS (cold rolled steel) Thickness: 1.52mm (.060") Coating: Black Powdercoat Jack Connector Housing: Zinc Alloy plated Bright Ni/Cu Operating Life: Minimum 750 insertion cycles Contact Material: Copper Alloy Contact Plating: 1.25 micrometers Au/Ni Contact Force: 100g minimum Plug Retention Force: 6.8kg minimum	
	Mechanical Characteristics IDC Connector Plastic Housing: Polycarbonate, UL94V-0 rated Operating Life: Minimum 20 reterminations Contact Material: Copper Alloy IDC Contact Plating: Tin Matte finish Contact Force: 100g minimum Wire Accommodation: 22-24 AWG solid	
	Electrical/Optical Characteristics Interface Resistance: 20mΩ Initial Contact Resistance: 2.5mΩ Insulation Resistance: >100 MΩ	
	Standards: ISO 11801 AMD 1 Class EA TIA-568-C.2 Cat 6A FCC Subpart F 68.5 IEC-603-7	

- **GTP Item E6 : Optical Fiber Cable, O. F. Cable 12F Outdoor – Armoured Loosetube Construction**
  - **12 Core Optical Fiber Armored Single-Mode:-**

Feature	Specification	Compliance (Yes/No)
Approved Brand	Molex / Systimax / Siemon / Panduit	

Cable Type	Optical fibres in water blocked loose tube, taped, corrugated steel tape armoured (STA) polyethylene (HDPE) outer sheathed embedded with two steel wires on the periphery. The cables are with UV Stabilized PE Jacket and protected from Rodent attacks. complying to ISO/IEC 11801, EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling	
Fiber Type	Single Mode, 9/125 micron primary coated buffers, OS2 (IEC 60793-2-50, B1.3 and ITU T G652.d). Shall be manufactured using Vapor Axial Deposition technology.	
Construction type		
Number of elements	1	
Tube:	Polybutylene, Terephthalate(PBT)	
Tube colour:	White	
Tube diameter	3.0/2.0 mm nominal OD/ID	
No of fibres:	4/6/8/12	
Fibrecolour sequence	Blue, Orange, Green, Brown, Slate (Grey), White, Red, Black, Yellow, Violet, Pink, Aqua	
Water Blocking	Thixotropic Gel (Tube) Petroleum Jelly (Interstices)	
Core Wrapping	Polyethylene Terephthalate	
Armouring:	Corrugated Steel Tape Armour (ECCS Tape) Thickness > 0.125mm	
Peripheral Strength Member	Two Steel wires (0.9 mm dia)	
Ripcord:	Ployester based yarns below armoured tape for easy ripping	
Outer Sheath	UV Stabilised Polyethylene (HDPE)	
Sheath thickness	2.0 mm nominal	
Sheath colour	Black	
Standards	complying to ISO/IEC 11801 2nd Edition, type OS1/OS2; AS/ACIF S008; AS/NZS 3080 ; TIA/EIA 568.C.3; IEC-60793-1, 60793-2 EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling	
Mechanical characteristics		
Dimensions and Mass Overall Cable (Nominal):	9.0 MM	
Mass (Nominal)	80 kg/km	
Cable length	2 km ± 10%	
Max. Bending Radius (during installation)	20 X Overall diameter	
Max. Bending Radius (during full load):	10 X Overall diameter	
Max. Tensile Strength-Short Term	1500N	
Max. Crush Resistance-Short Term:	2000N/10 cm	
Operating Temperature	-40℃ ±70℃	

range		
Optical characteristics		
Core Diameter @ 1310nm	9 + 0.6 µm	
Cladding Diameter	125 + 1.0 µm	
Cladding Non circularity	< 1.0 %	
Core Non circularity	< 6.0 %	
Core-Cladding Concentricity error	< 0.6 µm	
Primary Coating Diameter-uncoloured	245 + 10 µm	
Primary Coating Diameter-coloured	250 + 15 µm	
Primary Coating Non Circularity	< 6.0 %	
Primary Coating Cladding Concentricity error	< 12.5 µm	
Proof Stress Level	> 0.7 (~ 1%) GPa	
Strip Force (Peak):	1.0 < F peak.strip< 8.9	
Zero dispersion wavelength	1310-8/+12 nm	
Zero dispersion slope	> 0.091 ps/(nm2.km)	
Fibre curl:	> 4 m-radius of curvature	
Cut-off wavelength	< 1260 nm	
Mode field diameter at 1310	9.3 ± 0.5 µm	
Mode field diameter at 1550	10.4 ± 0.8 µm	
Macrobending loss @ 1550 nm, 100 turns on a 60mm mandrel	<0.5 db	
Max (chromatic)dispersion:		
@1270-1340nm	<5.3ps/nm-km	
@1285-1330nm	<3.5ps/nm-km	
Polarisation mode dispersion (PMD)		
coefficient, cabled	< 0.5 ps/sq km)	
PMD Link Design Value	< 0.2 ps/sq km) RoHS Complaint	
Electrical/Optical Characteristics		
Attenuation	Characteristics - Optical Performance Max. Attenuation (Cable with fibres) At 1310 nm: 0.35 dB/km At 1550 nm: 0.22 dB/km Max. Average Attenuation; At 1310 nm: 0.33 dB/km At 1550 nm: 0.21 dB/km	
Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.		

- **GTP Item E7 : Intelligent Singlemode 24P Duplex LC Fibre Patch Panel**
  - **Fiber Optic LC style 24 Port Patch Panel:-**

Approved Make : Molex / Systimax / Siemon / Panduit		
	Description	**Compliance (Yes/No)**
	Min. Required Specification	
Features	24 Port Configurable Fibre drawer should be 1U rack mount unit for storing and terminating incoming fibre cable. It should be able to configute 6 Pak Plates of fibre system to suit all fibre applications.	
	It should be with management rings within system to accommodate excess fibre cordage behind the trough adapters and maintain fibre bend radius	
	It should be able to accommodates single mode and multi modefibres	
	Properties: Adhesive labelling for port identification, Sliding drawer for ease of reconfiguring fibres, Rugged steel construction finished in attractive, Graphite finish to complement all rack mount equipment, Accommodates 2 x 12 fibre Splice Trays	
	Material: Powder coated Cold Rolled Steel	
	Accommodation: 24 Port (Using 6 Pak Plates, see Datasheet)	
	Fibre Termination - Direct Termination	
	Options: Fusion Splice , Mechanical Splice	
Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.		

- **GTP Item E8 : Intelligent LC-LC DUP SM OS1 LS0H - 3m Intelligent Patch cord for Fiber panel, Fiber Optic Accessories for Terminating Fiber**

Approved Make : Molex / Systimax / Siemon / Panduit		
	Description	**Compliance (Yes/No)**
	Min. Required Specification	
Features	Intelligent Fiber Optic Patch Cords should be use to connect intelligent Fiber panels within the System. The patch cords should incorporate a monitoring cable alongwith contact points on the patch cord connectors that activate the detection mechanism in the intelligent patch panel.	
	It should be available in Single mode (OS1) and multimode (OM1, OM2, OM3) constructions	
	Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.	

- **GTP Item E9 : 24 Port Configurable Fiber Sliding Drawer – Unloaded, Fiber Optic Accessories for Terminating Fiber**

Approved Make : Molex / Systimax / Siemon / Panduit	
	Min. Required Specification
Features	24 Port Configurable Fiber drawers should be 1U rack mount unit for storing and terminating incoming fiber cable. It should be able to configure 6 Pak Plates of fiber system to suit all fiber applications.
	It should be with management rings within system to accommodate excess fiber cordage behind the trough adapters and maintain fiber bend radius

	It should be able to accommodates single mode and multi modefibers
	Properties: Adhesive labeling for port identification, Sliding drawer for ease of reconfiguring fibers, Rugged steel construction finished in attractive, Graphite finish to complement all rack mount equipment, Accommodates 2 x 12 fiber Splice Trays
	Material: Powder coated Cold Rolled Steel
	Accommodation: 24 Port (Using 6 Pak Plates, see Datasheet)
	Fiber Termination - Direct Termination
	Options: Fusion Splice , Mechanical Splice
	Dimensions: 45mm H x 485mm W x 255mm D
	Weight 5.7Kg

- **GTP Item E10 : LC Duplex 12 Fibre SM Adapter Plate, Fiber Optic Accessories for Terminating Fiber**

❖ LC Adaptors:-

Approved Make : Molex / Systimax / Siemon / Panduit		
	Description	**Compliance (Yes/No)**
	Min. Required Specification	
Features	Adapters should be with a shutter providing a barrier against harmful light emissions and with either precise zirconia ceramic or rugged phosphor bronze alignment sleeves	
	It should be with Small footprint, RoHS Compliant, Zirconia, phosphor bronze and polymer alignment sleeves, Unique shuttered feature protects from harmful light emissions. Available upon application It should be available in single mode / multimode	
	Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.	

❖ LC Type SM Pigtails - 1 meter:-

Approved Make : Molex / Systimax / Siemon / Panduit		
	Description	**Compliance (Yes/No)**
	Min. Required Specification	
Features	Characteristics Cable: 900um Buffered Outside Diameter: 900um Buffer Diameter: 900um tight buffer Minimum bend radius: install: 30 mm Operating Temperature: -20ºC to 75ºC Retention Strength: 100N Cable Sheath: LS0H	
	Features and Benefits: Standard or custom assemblies Precision ferrule endface geometry Controlled fibre protrusion Factory polished, tested and serialized.	

	Standards: ISO/IEC 1108:2008. ANSI/TIA/EIA- 568-C.3, EIA 492, Telecordia GR-409, ICEA-596, OS2-STD ITU-T-G652 D LS0H* IEC 61034-1&2, IEC-60332-1 IEC 60754-1&2 standards	
Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.		

- **E12: LC-LC type Patch cords SM 3 mts Duplex, Fiber Patchcord.**

❖ **LC-LC Type SM Duplex Fiber Optic Patch Cord - 2 meter:-**

	Description	**Compliance (Yes/No)**
	Min. Required Specification	
Features	Optical Fibre Patch Cords should be with LSZH jacket as standard. Patch cords should be offer factory –controlled performance in a variety of connector, ISO performance standards and lengths. It has taken specific attention to the end-face geometry and fibre core alignment to ensure reliability and optimised performance	
	Features and Benefits: 100% Factory Tested – Guaranteed performance LS0H Jacket Standard – Reduces toxic/corrosive gasses emitted during combustion. Plenun and PVC also available Multiple Formats available - Available in Simplex, Duplex, Single Mode, Multi-Mode and a variety of connector options	
	Mechanical Characteristics Cordage O.D.: 2.0mm +/- 0.1mm x 4.1mm +/- 0.2mm Buffer Diameter: 900µ Primary Coating: 245µ Strength Member: Aramid Yarn Jacket Material: LS0H IEC 61034-1 & 2, IEC-60332-1, IEC-60754-1 & 2 Minimum Bend Radius: Install: 3.0cm. Long Term Bend Radius: 2.0cm Operating Temperature: -40℃ to +85℃	
	Standards: ISO/IEC 1108:2008, ANSI/TIA/EIA 568.C.3, ANSI/TIA/ EIA-492, TELECORDIA GR-409, ICEA-596 OS2 -STD ITU-T-652D	
Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.		

- **GTP Item E13 : Intelligent Scanner 576 Channel , for Intelligent Fiber Patch Panel**
  - **Intelligent Passive :-**

Approved Make : Molex / Systimax / Siemon / Panduit		
	Description	**Compliance (Yes/No)**
	Min. Required Specification	
General Features	It should provide better control and visibility of your physical layer infrastructure will deliver measurable improvements to both daily and long term IT/Network management. It should reduce time, cost, resource, and purchasing outlays, while simultaneously improving response and security efforts.	
	Features: Accurate, automated asset auditing in real-time Improved management of people, connected devices and facilities Proactive IT response (help desk, daily processes, reporting) Increased network security Cost, time and effort efficiencies through capacity evaluation and resource usage Disaster recovery (maps, rack elevations and reports for rebuild / connectivity identification) Seamless, multi-site network management.	
	It monitors the presence of connected devices, and provides alerts on unauthorized connections or disconnections on the network. The removal of an IP Security Camera, lifesaving medical equipment, or expensive network printer can be instantly and selectively communicated, along with its precise location on a building map, even if the connected device is turned off.	
	A server supports a virtually unlimited number of users across a global enterprise providing instant access to complete information about the physical channel and attached devices wherever they are located.	
	This should be allow on-site office personnel to implement changes and correct local IT problems under the direction of skilled centrally-based technicians.	
	It should be detects the complete end-to-end channel from the switch to the work area outlet including attached devices. Rather than relying on the limitations of periodic polling and inferred data, it should be monitor and report on device identities when it senses a change in the channel	
	It should be capable to integrate with LDAP and Microsoft Active Directory to provides seamless, automatic access to Intelligent passive network solution by any authenticated user.	
	It should be use a powerful and intuitive user interface that should provide quick and accurate monitoring and analysis of the complete physical channel, including attached devices. By using web-based technology, It should conveniently delivers real-time visual representation of all channel elements on building maps. All Key features should	

	be supporting this to experience include user friendly pan/zoom and drag/drop capabilities, plus multi-view dashboards	
	It should be utilize SNMP (Simple Network Management Protocol) to provide data to Network Management System (NMS) tools regarding the status of structured cabling and connected devices. This should be extends the capability of NMS to help manage the physical layer in a better way.	
	This should be allow on-site office personnel to implement changes and correct local IT problems under the direction of skilled centrally-based technicians.	
	OEM should have customer support portal to avail warranty support to user	
	Installer partner should be trained, authorized and certified to install this solution	
	Standards Compliance: TIA/EIA 568-C.2 ISO/IEC 11801 AS/NZS 3080 EN 50173	
	OEM should have at least one installation reference in Gujarat.	
	Intelligent Scanners need to be monitor activity on a system. Each 1U scanner should be connected to up to 48 patch panels, providing monitoring of up to 1152 separate physical channels. Standard RJ45 patch cords should be use as the data bus connection between scanners and patch panel	
	Features:	
Intelligent Scanner	Auto discovery of active hardware/devices & automatic database population	
	Mission critical port disconnection alerts	
	Low power consumption with no fans or cooling required	
	Automatic Rediscovery/Re-synchronization after outage or system failure	
	Transaction queues record events for later delivery if the scanner is disconnected from the application	
Intelligent Fiber panel	Intelligent Fibre Optic panels should be use within the Intelligent Solution. The adapter interface should be 24 duplex LC adapters. Each 1U 24 Port enclosure need to have one data bus connection port locate on the rear of the panel that need to connect the panel to a scanner via a standard RJ45 patch cord.	
	It should have two in-built power status indicators on the panel to provides visibility of power from the scanner. When connected to a scanner, the panels should detect connection activity on each duplex LC port. The patch panel should works as a conventional patch panel when not connected to the Intelligent system	
	Features:	

	Panel should have options for Single mode and Multimode	
	It should have Slide out cable management shelf	
	The mounting facility should provide adequate space for routing patch cords, even in free standing enclosures with the front door closed	
	With ANSI and international metric hardware kit	
Intelligent Fiber patch cords	Intelligent Fibre Optic Patch Cords should be use to connect intelligent fiber panels within the System. The patch cords should incorporate a monitoring cable alongwith contact points on the patch cord connectors that activate the detection mechanism in the intelligent patch panel.	
	It should be available in Single mode (OS1) andmulti-mode (OM1, OM2, OM3) constructions	
Application Software	The application Software should be client server based Software program and should be also the central data manager for the intelligent passive networking System	
	It should manage OSI Layer 1 assets and need to be provide instantaneous information to the IT Manager regarding connectivity on enabled channels	
	It should allow continuous monitoring of the complete physical channel from work area outlet to the active network device.	
	It should automatically monitors all connections /disconnections, updates all changes to the database, identifies and confirms port availability and notifies the IT Manager of all unscheduled or unauthorized network changes.	
	Unrestricted number of users per license	
Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.		

- **GTP Item E14 : Intelligent Scanner 96 Channel PP License : License from Authorized OEM to be provided**

- **GTP Item E15 : Intelligent Server Application License (Same make of Passive Components) - License from Authorized OEM to be provided**

TECHNICAL SPECIFICATION FOR NETWORK ACTIVE COMPONENTS

- **GTP Item E16 : Network Switch : Advance Layer 3 Fully Managed 24 Ports Combo Gigabit Stackable Switches.**

Sr No	Features description	Compliance (Yes/No)
1.	Switch with following port density: a) 24x 1G Combo Base-X slots & Base-T Slots b) Additional 4x10G SFP+ ports C) Additional 2x40G Module Slot for Future Scalability	
2.	Should support Virtual Switching System (VSS) / equivalent technology for higher availability of Layer 2 and Layer 3 including video applications with	

	active-active clustering bandwidth of 160Gbps per switch. Vendors should offer required cables/modules from day-1	
3.	The Virtual Switching System (VSS) / equivalent technology shall support virtualization of switch locally or over geographically diversified locations	
4.	Should support OpenFlow v1.03	
5.	SFP ports will support any combination of 10/100/1000T, 100X, 100FX, 100BX(Bi-directional), 1000X, 1000SX, 1000LX, 1000ZX or 1000ZX CWDM SFPs	
6.	Should support 64K MAC address or higher	
7.	**Resiliency :**Should support STP, PVST+ RPR/equivalent for sub 50ms ring protection	
8.	**Layer 2 Features:**IEEE 802.1Q Virtual LAN (VLAN) bridges, IEEE 802.1v VLAN classification by protocol and port, IEEE 802.3ac VLAN tagging, STP, RSTP, MSTP, IGMP snooping (v1, v2 and v3), IGMP snooping fast-leave, MLD snooping (v1 and v2)	
9.	**Layer 3 Features**: Should support Static routing, and scalable to support VRF Lite, RIP, RIPng, OSPF, OSPFv3, BGP, BGP+, PIM v4 SM, DM and SSM, PIMv6-SM based on network requirements	
10.	**Quality of Service:**Eight priority queues with a hierarchy of high-priority queuesfor real-time traffic, and mixed scheduling, Limit bandwidth per port or per traffic class down to 64kbps, Policy-based QoS based on VLAN, port, MAC	
11.	**Security:** Should support ACLs, DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI), AAA, MAC address filtering and MAC address lock-down, Tri-authentication: MAC-based, web-based and IEEE 802.1x IEEE 802.3az, IEEE 802.1Q, IEEE 802.1v, IEEE 802.3ac	
12.	**Management :**Should support: CLI, GUI, IEEE802.3az, RMON 4 groups, SNMPv3, LLDP Digital optical monitoring, cable fault detection DHCPv6, DNSv6, Telnetv6 and SSHv6, NTPv6 USB interface for taking backup of software release files configurations, SSLv2 and SSLv3, Event-based triggers allow user-defined scripts to be executed upon selected system events based on Time , Date , day and Event based	
13.	**Certifications:** UL60950-1, CAN/CSA-C22.2 No.60950-1-03, EN60950-1, EN60825-1, AS/NZS60950.1,UL, cUL, ROHS	
14.	**Operating temperature range (continuous)** : 0℃ to 50℃	
15.	The High available switch shall also act as an Centralized management / provisioning console for dynamic policy roll out across the switches or for selected switches in the network using instant access/equivalent technology	
16.	The High available switch shall support automated scheduled back up of running configuration files from all the network switches to ensure ease of management.	
17.	**Approved OEM :**Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	
18.	OEM Compliances: ➢ The proposed model should not be End of Sale and End of Life and the latest datasheet of the proposed model should be available on the OEM's Global website ➢ The OEM should have an Indian Registered Subsidiary and the Indian Subsidiary certificate needs to submitted ➢ India TAC support contact details to be submitted by OEM ➢ India RMA support and process details to be submitted by OEM ➢ For ease of integration all active components (switches, SFP's) should	

	be of same OEM and the Test reports of the products should be submitted by the OEM	

- **GTP Item E17 : Enterprise Grade Layer 2 Fully Managed 8 Ports Gigabit Switches.**

Sr No	Features description	Compliance Yes/No
1.	8* 10/100/1000 Base-T ports and additional 2 SFP Ports or higher	
2.	Should support OpenFlow v1.03	
3.	SFP ports will support any combination of 10/100/1000T, 100X, 100FX, 100BX(Bi-directional), 1000X, 1000SX, 1000LX, 1000ZX or 1000ZX CWDM SFPs	
4.	Should support 16K MAC address or higher	
5.	**L2 Features:** Should support STP, RSTP, MSTP, STP root guard, Voice VLAN IGMP v1/v2/v3 snooping, MLD snooping (MLDv1 and v2), IEEE 802.3ac VLAN tagging, IEEE 802.1Q Virtual LAN (VLAN) bridges, IEEE 802.1v VLAN classification by protocol and port	
6.	**Resiliency :**Should support STP, PVST+ RPR/equivalent for sub 50ms ring protection	
7.	**Quality of Service:** Should support Policy-based QoS based on VLAN, port, MAC and general packet classifiers Should support strict priority, weighted round robin or mixed Scheduling Should support 8 priority queues with a hierarchy of high priority queues for real time traffic, and mixed scheduling, for each switch port	
8.	**Security:** Should support ACL based on L2/L3 headers, Dynamic VLAN assignment DHCP snooping, IP Source guard, DAI, Private VLAN, Authentication(MAC, Web and IEEE 802.3x), sflow, Radius, TACACS+, LAG, Loop protection and loop detection,	
9.	**Management :**Should support: CLI, GUI, IEEE802.3az, RMON 4 groups, SNMPv3, LLDP Digital optical monitoring, cable fault detection DHCPv6, DNSv6, Telnetv6 and SSHv6, NTPv6 USB interface for taking backup of software release files configurations, SSLv2 and SSLv3, Event-based triggers allow user-defined scripts to be executed upon selected system events based on Time , Date , day and Event based	
10.	**Certifications:** UL60950-1, CAN/CSA-C22.2 No.60950-1-03, EN60950-1, EN60825-1, AS/NZS60950.1,UL, cUL, ROHS	
11.	**Operating temperature range (continuous)** : 0℃ to 50℃	
12.	**Approved OEM :**Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	
13.	OEM Compliances: ➢ The proposed model should not be End of Sale and End of Life and the latest datasheet of the proposed model should be available on the OEM's Global website ➢ The OEM should have an Indian Registered Subsidiary and the Indian Subsidiary certificate needs to submitted ➢ India TAC support contact details to be submitted by OEM ➢ India RMA support and process details to be submitted by OEM ➢ For ease of integration all active components (switches, SFP's)	

	should be of same OEM and the Test reports of the products should be submitted by the OEM	

- **GTP Item E18 : Enterprise Grade Layer 2 Fully Managed 16 Ports Gigabit Switches.**

Sr No	Features description	Compliance Yes/No
1.	16* 10/100/1000 Base-T ports and additional 2 SFP Ports or higher	
2.	Should support OpenFlow v1.03	
3.	SFP ports will support any combination of 10/100/1000T, 100X, 100FX, 100BX(Bi-directional), 1000X, 1000SX, 1000LX, 1000ZX or 1000ZX CWDM SFPs	
4.	Should support 16K MAC address or higher	
5.	**L2 Features:** Should support STP, RSTP, MSTP, STP root guard, Voice VLAN IGMP v1/v2/v3 snooping, MLD snooping (MLDv1 and v2), IEEE 802.3ac VLAN tagging, IEEE 802.1Q Virtual LAN (VLAN) bridges, IEEE 802.1v VLAN classification by protocol and port	
6.	**Resiliency :**Should support STP, PVST+ RPR/equivalent for sub 50ms ring protection	
7.	**Quality of Service:** Should support Policy-based QoS based on VLAN, port, MAC and general packet classifiers Should support strict priority, weighted round robin or mixed Scheduling Should support 8 priority queues with a hierarchy of high priority queues for real time traffic, and mixed scheduling, for each switch port	
8.	**Security:** Should support ACL based on L2/L3 headers, Dynamic VLAN assignment DHCP snooping, IP Source guard, DAI, Private VLAN, Authentication(MAC, Web and IEEE 802.3x), sflow, Radius, TACACS+, LAG, Loop protection and loop detection,	
9.	**Management :**Should support: CLI, GUI, IEEE802.3az, RMON 4 groups, SNMPv3, LLDP Digital optical monitoring, cable fault detection DHCPv6, DNSv6, Telnetv6 and SSHv6, NTPv6 USB interface for taking backup of software release files configurations, SSLv2 and SSLv3, Event-based triggers allow user-defined scripts to be executed upon selected system events based on Time , Date , day and Event based	
10.	**Certifications:** UL60950-1, CAN/CSA-C22.2 No.60950-1-03, EN60950-1, EN60825-1, AS/NZS60950.1,UL, cUL, ROHS	
11.	**Operating temperature range (continuous)** : 0℃ to 50℃	
12.	**Approved OEM :**Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	
13.	OEM Compliances: ➢ The proposed model should not be End of Sale and End of Life and the latest datasheet of the proposed model should be available on the OEM's Global website ➢ The OEM should have an Indian Registered Subsidiary and the Indian Subsidiary certificate needs to submitted ➢ India TAC support contact details to be submitted by OEM ➢ India RMA support and process details to be submitted by OEM ➢ For ease of integration all active components (switches, SFP's)	

	should be of same OEM and the Test reports of the products should be submitted by the OEM	

- **GTP Item E19 : Enterprise Grade Layer 2 Fully Managed 24 Ports Gigabit Switches.**

Sr No	Features description	Compliance Yes/No
1.	24* 10/100/1000 Base-T ports and additional 2 SFP Ports or higher	
2.	Should support OpenFlow v1.03	
3.	SFP ports will support any combination of 10/100/1000T, 100X, 100FX, 100BX(Bi-directional), 1000X, 1000SX, 1000LX, 1000ZX or 1000ZX CWDM SFPs	
4.	Should support 16K MAC address or higher	
5.	**L2 Features:** Should support STP, RSTP, MSTP, STP root guard, Voice VLAN IGMP v1/v2/v3 snooping, MLD snooping (MLDv1 and v2), IEEE 802.3ac VLAN tagging, IEEE 802.1Q Virtual LAN (VLAN) bridges, IEEE 802.1v VLAN classification by protocol and port	
6.	**Resiliency :**Should support STP, PVST+ RPR/equivalent for sub 50ms ring protection	
7.	**Quality of Service:** Should support Policy-based QoS based on VLAN, port, MAC and general packet classifiers Should support strict priority, weighted round robin or mixed Scheduling Should support 8 priority queues with a hierarchy of high priority queues for real time traffic, and mixed scheduling, for each switch port	
8.	**Security:** Should support ACL based on L2/L3 headers, Dynamic VLAN assignment DHCP snooping, IP Source guard, DAI, Private VLAN, Authentication(MAC, Web and IEEE 802.3x), sflow, Radius, TACACS+, LAG, Loop protection and loop detection,	
9.	**Management :**Should support: CLI, GUI, IEEE802.3az, RMON 4 groups, SNMPv3, LLDP Digital optical monitoring, cable fault detection DHCPv6, DNSv6, Telnetv6 and SSHv6, NTPv6 USB interface for taking backup of software release files configurations, SSLv2 and SSLv3, Event-based triggers allow user-defined scripts to be executed upon selected system events based on Time , Date , day and Event based	
10.	**Certifications:** UL60950-1, CAN/CSA-C22.2 No.60950-1-03, EN60950-1, EN60825-1, AS/NZS60950.1,UL, cUL, ROHS	
11.	**Operating temperature range (continuous)** : 0℃ to 50℃	
12.	**Approved OEM :**Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	
13.	OEM Compliances: ➢ The proposed model should not be End of Sale and End of Life and the latest datasheet of the proposed model should be available on the OEM's Global website ➢ The OEM should have an Indian Registered Subsidiary and the Indian Subsidiary certificate needs to submitted ➢ India TAC support contact details to be submitted by OEM ➢ India RMA support and process details to be submitted by OEM ➢ For ease of integration all active components (switches, SFP's)	

	should be of same OEM and the Test reports of the products should be submitted by the OEM	

- **GTP Item E20 : SFP Module (Transciever).**

S.No	MINIMUM SPECIFICATIONS OR BETTER	Compliance
Approved Make : Cisco / Allied Telesis/Juniper/ Arista		
1	Transceiver should be Hot pluggable and support 1G speed on Single Mode. Transceiver distance capacity should be 10Km. Transceiver interface should be Duplex LC connector. Transceiver should support Single-mode 9 um fiber. Operating Temperature: 0 to 50 ℃	
2	Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.	

- **GTP Item E21 : Server for NMS Software & Intelligent Passive Infrastructure Solution Software**
  Licensed Network Monitoring / Management Software.

S.No	Specification's	Compliance Yes/No
1	Automatic topology discovery and creation of network maps for Layer 3 and Layer 2 network , All the available VLANS	
2	Should have high level Network Inventory polling capability for IP Network nodes including the security appliance, All available line cards , Modules , ports , Physical links , VLAN interfaces and all the other SNMP capable devices in the network	
3	Should have powerful administration control	
4	Detailed performance monitoring and management	
5	Should have extensive fault management capabilities with Real time Event and Alarm notifications , System Logs and Audit trials	
6	Creation and management of security and QOS policies	
7	Scheduled Device configuration back-up and restore functionality	
8	Automatic Detection of configuration changes for easy trouble shooting and Isolation	
9	Should support 3rd party devices and end points	
10	Should have the functionality of Group provisioning / Scheduled configuration roll out management	
11	Should have the ability to perform scheduled or unscheduled network wide software or Firmware upgrades	
12	Should have the ability to customize the NMS dash boards as per the requirements of technical team	
13	Should have the ability to perform / create group of devices for applying same task	
14	Should have extensive Event notification capability	

15	Should provide the flexibility to the network administrator to assign task to an Individual network engineer and assign ownership / track the status of the issue resolution	
16	Should have extensive centralized trouble shooting tools in built	
17	The NMS solution should be preferably from the same Active switching vendor , in case vendors proposing for 3rd party NMS solution should provide all the interop reports certified by both the NMS vendor and Active switching and security gateway vendor on seamless interoperability	
18	All the required Hardware / Software licenses for the NMS solution should be proposed by the bidder	
19	Bidder Must produce the manufacturer Authorization certificate from the OEM with respect to this Project.	

- **GTP Item E22 : Server for NMS Software & Intelligent Passive Infrastructure Solution Software**
  Licensed Network Monitoring / Management Software.

Features	Description
Processor	**Intel Xeon E3 Series Product Family Processors**
Processor Socket	**1**
Memory	**8 GB RAM**
Hard Disk Drive Bays	**Should Support Minimum 4 x 3.5" SATA Drives** **Should have Minimum 2 TB** **Should have on Board SATA Controller**
NIC	**Should Support Gigabit Speeds**
Operating System	**Latest Windows Server OS with Licenses**
Approved Make	**Dell / HP**

- **GTP Item E23 : Wall Mount Network Rack, Field Location Network Rack for Network Switches and Patch Panels.**

	Description
Enclosure Type	Wall mount Networking Rack
Characteristics value Indicated	H x W x D (Height x Width x Depth) 12U x 600W x 500D
Accessories	
Shelf	2 No's Front mounted vented cantilever type 250mmD.
Cooling Fans	2 No's Fan's -230V AC - 90 CFM ,38 dBA 2650RPM
Power box	1 Nos. 6 Sockets 13AMP, 230V with 13amp Plug Top AC Box.
Approved Make	WQ/Rittal/APW

- **GTP Item E24 : Floor Standing Network Rack, Field Location Network Rack for Network Switches and Patch Panels.**

	Description
Enclosure Type	Floor Standing Networking Rack
Characteristics value Indicated	H x W x D (Height x Width x Depth) 22U x 600W x 800D
Accessories	
Shelf	2 No's Front mounted vented cantilever type 250mmD.
Cooling Fans	4 No's Fan's -230V AC - 90 CFM ,38 dBA 2650RPM
Power box	1 Nos. 6 Sockets 13AMP, 230V with 13amp Plug Top AC Box.
Approved Make	WQ/Rittal/APW

- **GTP Item E25 : Floor Standing Network Rack, Field Location Network Rack for Network Switches and Patch Panels.**

	Description
Enclosure Type	Floor Standing Networking Rack
Characteristics value Indicated	H x W x D (Height x Width x Depth) 42U x 800W x 1000D
Accessories	
Shelf	4 No's Front mounted vented cantilever type 250mmD.
Cooling Fans	4 No's Fan's -230V AC - 90 CFM ,38 dBA 2650RPM
Power box	1 Nos. 6 Sockets 13AMP, 230V with 13amp Plug Top AC Box.
Approved Make	WQ/Rittal/APW

ANNEXURE – D

LIST OF FEEDER WHERE ENERGY METERS ARE REQUIRED TO INSTALL

Accu. Class 0.2 S Meter Detail

Sr. No.	Feeder Name	Acc. Class
Unit # 3		
1	**Generator 3**	0.2 S Class
2	U.A.T. - 3A	
3	U.A.T. - 3B	
6.6 KV Side		
4	UAT - 3A	0.2 S Class
5	UAT - 3B	
6	C.W. PUMP - 3A	
7	C.W. PUMP - 3C	
8	ASH W P - 3A	
9	I.D. FAN - 3A	
10	F.D. FAN - 3A	
11	P.A. FAN - 3A	
12	COAL MILL - 3A	
13	COAL MILL - 3B	
14	COAL MILL - 3C	
15	C.E. PUMP - 3A	
16	S.O.P. - 3A	
17	BFP - 3C1	
18	B.F.P. - 3A	
19	C.W. PUMP - 3B	
20	C.E. PUMP - 3B	
21	C.E. PUMP - 3C	
22	ASH W P - 3B	
23	COAL MILL - 3D	
24	COAL MILL - 3E	
25	COAL MILL - 3F	
26	P.A. FAN - 3B	
27	F.D. FAN - 3B	
28	I.D. FAN - 3B	
29	BFP - 3C2	
30	B.F.P. - 3B	
31	CW PUMP - 3D	
32	UST - 3A	
33	UST - 3B	
34	ESP – 3	
Unit # 4		
35	**Generator 4**	0.2 S Class
36	U.A.T. - 4A	
37	U.A.T. - 4B	
6.6 KV Side		

38	U.A.T. - 4A	
39	U.A.T. - 4B	
40	C.W. PUMP - 4A	
41	I.D. FAN - 4A	
42	P.A. FAN - 4A	
43	F.D. FAN - 4A	
44	ASH W P -4A	
45	C.E.PUMP- 4A	
46	COAL MILL-4A	
47	COAL MILL - 4B	
48	COAL MILL - 4C	
49	B.F.P. - 4A	
50	B.F.P. - 4C1	
51	ASH W P - 4B	
52	C.E. PUMP - 4B	
53	COAL MILL - 4D	0.2 S Class
54	COAL MILL - 4E	
55	COAL MILL - 4F	
56	F.D. FAN - 4B	
57	P.A. FAN - 4B	
58	I.D. FAN - 4B	
59	B.F.P. - 4B	
60	B.F.P. - 4C2	
61	C.W. PUMP - 4B	
62	C.W. PUMP - 4C	
63	CE PUMP - 4C	
64	AWP - 4C	
65	SOP – 4	
66	UST - 4A	
67	UST - 4B	
68	ESP – 4	
69	320 KW MOTOR FEEDER	
Unit # 5		
70	**Generator 5**	
71	U.A.T. - 5A	0.2 S Class
72	U.A.T. - 5B	
6.6 KV Side		
73	U.A.T. - 5A	
74	U.A.T. - 5B	
75	C.W. PUMP - 5A	
76	I.D. FAN - 5A	
77	P.A. FAN - 5A	
78	F.D. FAN - 5A	0.2 S Class
79	U.S.T. - 5A	
80	ASH WATER - 5A	
81	C.E. PUMP - 5A	
82	COAL MILL - 5A	
83	COAL MILL - 5B	

84	COAL MILL - 5C	
85	B.F.P. - 5A	
86	U.S.T. - 5B	
87	ASH WATER - 5B	
88	C.E. PUMP - 5B	
89	COAL MILL - 5D	
90	COAL MILL - 5E	
91	COAL MILL - 5F	
92	F.D. FAN - 5B	
93	P.A. FAN - 5B	
94	I.D. FAN - 5B	
95	B.F.P. - 5B	
96	B.F.P. - 5C ON "B"	
97	C.W. PUMP - 5B	
98	C.W. PUMP - 5D	
99	ASH WATER - 5C	
100	BFP - 5C A Bus	
101	Coal plant source	
102	CE PUMP 5C	
103	CW PUMP 5C	
104	ESP - 5A	
105	ESP - 5B	
106	Sop – 5	
ST # 2		
C2A Bus		
107	Tie C2A to 3A	
108	SST # 2A	
109	ST # 2 Incomer C2A	
110	Spare feeder	
111	Tie C2A to 4A	
112	AWP - 3C	
C2B Bus		
113	ESP Stand by transformer	0.2 S Class
114	Tie C2B to 4B	
115	Spare feeder	
116	ST # 2 Incomer C2B	
117	SST # 2B	
118	Tie C2B to 3B	
ST # 3		
C3A Bus		
119	Tie C3A to C2A	0.2 S Class
120	SST # C3A	
121	ST # 3 Incomer C3A	
122	Spare feeder	
123	Tie C3A to 5A	
124	Spare feeder	
C3B Bus		
125	Tie C3B to 5B	0.2 S Class

126	SST # C3B	
127	ST # 3 Incomer C3B	
128	6.6 KV Source - 1 C3B bus in unit 3,4 NCHP	
129	Tie C3B to C2B	
Coal Plant		
130	CHP-1 6.6KV INCOMER	
131	CHP-1 6.6KV INCOMER	
132	TRF# 1A	
133	TRF# 1B	
134	CHP-1 Crusher-A	
135	CHP-1 Crusher-B	
136	CHP-2 C3B Bus	
137	CHP-2 5A Bus	
138	CHP-2 ELECON CRUSHER	
139	CHP-2 L&TCRUSHER	
140	CHP-2 x'mer-1,Jyoti bus	
141	CHP-2 x'mer-2,Jyoti Bus	
142	CHP-2 x'mer-3,Osakha Bus	
143	CHP-2 S/R x'mer Bus	
144	CHP-3 6.6 KV Incomer 1 trans.	
145	CHP-3 6.6 KV Incomer 2 trans.	
146	CHP-3 Service trans. 1 A	0.2 S Class
147	CHP-3 Service trans. 1 B	
148	CHP-3 Service trans. 2 A	
149	CHP-3 Service trans. 2 B	
150	CHP-3 Service trans. 3 A	
151	CHP-3 Service trans. 3 B	
152	CHP-3 Service trans. 4 A	
153	CHP-3 Service trans. 4 B	
154	CHP-3 Crusher 1	
155	CHP-3 Crusher 2	
156	CHP-3 BCN 1A	
157	CHP-3 BCN 1B	
158	CHP-3 BCN 7A	
159	CHP-3 BCN 7B	
160	CHP-3 BCN 8A	
161	CHP-3 BCN 8B	
162	CHP-3 S/R trans.	
220 KV Duplex Panel		
163	GT # 3	
164	GT # 4	
165	GT # 5	
166	ST # 2	
167	ST # 3	
168	220 KV Th. Hydro tie line – 1	
169	220 KV Th. Hydro tie line – 2	

170	220 KV Achhalia line – 1	
171	220 KV Achhalia line – 2	
172	220 KV Achhalia line – 3	
173	220 KV MOTA – 1	
174	220 KV MOTA -2	
175	Buscoupler 220 KV	
400 KV Control Room		
176	400 KV Kosamba line – 1	0.2 S Class
177	400 KV Kosamba line – 2	
178	400 KV Kosamba line – 3	
179	400 KV GT # 6	
180	400 KV ST # 5	
181	220 KV ST # 4	
182	400 KV TBC	
183	400 KV SIDE ICT	
184	220 KV SIDE ICT	
Unit # 6		
185	Generator 6	0.2 S Class
186	UAT - 6A	
187	UAT - 6B	
188	OBA I/C(ST-4)	0.2 S Class
189	Tie to OBB	
190	OBB I/C (ST-5)	
191	Tie to OBA	
192	OCA I/C (ST-4)	
193	Tie to OCB	
194	Tie to 6CA	
195	OCB I/C (ST-5)	
196	Tie to OCA	
197	Tie to 6CB	
198	UAT I/C-A	
199	UAT I/C-B	
200	Tie from OCA	
201	Tie from OCB	
202	ODATO-1 (SST-A)	
203	ODATO-2 (SST-B)	
204	6DATO-1 (UST-A)	
205	6DATO-2 (UST-B)	
206	CWPH X'mer -1	
207	CWPH X'mer -2	
208	ESP 6DBT01	
209	ESP 6DBT02	
210	ESP 6DCT01	
211	ESP 6DCT02	
212	ESP 6DDT01	
213	ESP 6DDT02	
214	ESP 6DET01	
215	ESP 6DET02	
216	ID fan - A Ch-I	
217	ID fan - A Ch-II	
218	ID fan - B Ch-I	
219	ID fan - B Ch-II	

220	DM PLANT x'mer-1	
221	DM PLANT x'mer-2	
222	Fire water P/H x'mer-1	
223	Fire water P/H x'mer-2	
224	CHP 8 MVA x'mer-1	
225	CHP 8 MVA x'mer-2	
226	MDBFP	
227	CW motor –A	
228	CW motor –B	
229	CW motor –C	
230	CW motor –D	
231	DMCW TG motor-A	
232	DMCW TG motor-B	
233	DMCW TG motor-C	
234	CEP-A	
235	CEP-B	
236	CEP-C	
237	Inst Air comp-A	
238	Inst Air comp-B	
239	PA fan motor –A	
240	PA fan motor –B	
241	FD fan motor –A	
242	FD fan motor –B	
243	Coal mill motor – A	
244	Coal mill motor – B	
245	Coal mill motor – C	
246	Coal mill motor – D	
247	Coal mill motor – E	
248	Coal mill motor – F	
249	Coal mill motor – G	
250	Coal mill motor – H	
251	DMCW SG motor-A	
252	DMCW SG motor-B	
253	BCW motor – A	
254	BCW motor – B	
255	BCW motor – C	
EMD - 6 ASH PLANT		
256	AHP X'mer -1	0.2 S Class
257	AHP X'mer -1	
258	HCSD X'mer – 1	
259	HCSD X'mer – 2	
260	CAC Motor – 1	
261	CAC Motor – 2	
262	CAC Motor – 3	
263	CAC Motor – 4	

Total Meter of 0.2 S Class Accu. 263 Nos.

Accu. Class 0.5 S Meter Detail

Sr. No.	Feeder Name	Acc. Class
UNIT # 3,4,5		
415 V Side		
1	SAC-3A	0.5 S Class
2	SAC-3B	
3	SAC-3C	
4	CAC-3A	
5	CAC-3B	
6	CAC-3C	
7	SAC-4A	0.5 S Class
8	SAC-4B	
9	SAC-4C	
10	CAC-4A	
11	CAC-4B	
12	CAC-4C	
13	AC plant comp.1	
14	AC plant comp.2	
15	AC plant comp.3	
16	SAC-5A	0.5 S Class
17	SAC-5B	
18	SAC-5C	
19	IAC-5A	
20	IAC-5B	
21	IAC-5C	
22	C/R-5 AC Plant-5A	
23	C/R-5 AC Plant-5B	
Coal plant		
(2).415 V Side buswise location		
24	CHP-1 BUS A	0.5 S Class
25	CHP-1 BUS B	
26	CHP-1 Conv 2A	
27	CHP-1 Conv 2A	
28	CHP-1 Conv 2B	
29	CHP-1 Conv 4A	
30	CHP-1 Conv 4B	
31	CHP-1 Conv 4B	
32	CHP-1 Conv 5A	
33	CHP-1 Rotor-A	
34	CHP-1 Rotor-B	
35	CHP-2 Jyoti Bus-1	
36	CHP-2 Jyoti Bus-2	
37	CHP-2 osaka Bus	
38	CHP-2 NGEF Bus	
39	CHP-2 S/R Bus	
40	CHP-2 RFO Bus	
41	CHP-2 Conv 5B	

42	CHP-3 Incomer-1 WT MCC-1	
43	CHP-3 Incomer-2 WT MCC-1	
44	CHP-3 Incomer-1 WT MCC-2	
45	CHP-3 Incomer-2 WT MCC-2	
46	CHP-3 Incomer-1 CHP MCC-1	
47	CHP-3 Incomer-2 CHP MCC-1	
48	CHP-3 Incomer-1 CHP MCC-2	
49	CHP-3 Incomer-2 CHP MCC-2	
50	CHP-3 BCN-4 M1, 110KW	
51	CHP-3 BCN-4 M2, 110KW	
52	CHP-3 BCN-6, 110 KW	
53	CHP-3 BCN-5 ,132 KW Motor	
54	CHP-3 WT-4 Main oil pump 160 KW Motor	
55	CHP-3 WT-5 Main oil pump 160 KW Motor	
CW PUMP/EMD (COM.)		
56	Fire Hydrant Pump-A(200KW) for Unit-6	
57	Fire Hydrant Pump-B(200KW) for Unit-6	
58	Fire Hydrant Pump A (75 KW)	0.5 S Class
59	Fire Hydrant Pump B (75 KW)	
60	Fire Hydrant PumpC (90KW)	
Unit # 6		
415 V Side		
61	LTMSB-1 I/C-A	
62	LTMSB-1 I/C-B	
63	LTMSB-2 I/C-A	
64	LTMSB-2 I/C-B	
65	LTMSB-3 I/C-A	
66	LTMSB-3 I/C-B	
67	LTMSB-4 I/C-A	
68	LTMSB-4 I/C-B	
69	ACP-1 I/C-A	
70	ACP-1 I/C-B	
71	ACP-2 I/C-A	
72	ACP-2 I/C-B	
73	ACP-3 I/C-A	
74	ACP-3 I/C-B	
75	ACP-4 I/C-A	0.5 S Class
76	ACP-4 I/C-B	
77	OTA I/C-A	
78	OTA I/C-B	
79	OTB I/C-A	
80	OTB I/C-B	
81	OQA I/C-A	
82	OQA I/C-B	
83	6HA I/C-A	
84	6HA I/C-B	
85	BOILER VALVE MCC #6HB I/C-1	
86	BOILER VALVE MCC #6HB I/C-2	
87	6HC I/C-A	
88	6HC I/C-B	
89	6HD I/C-1	

90	6HD I/C-2	
91	ESP AC & VENT. #6TA I/C-1	
92	ESP AC & VENT. #6TA I/C-2	
93	SB MCC I/C-1	
94	SB MCC I/C-2	
95	415V Station Service SWBD#ODA IC-1	
96	415V Station Service SWBD#ODA IC-2	
97	415V Unit Service SWBD#6DA IC-1	
98	415V Unit Service SWBD#6DA IC-2	
99	415V DG EMERGENCY SWBD#6DG I/C-1	
100	415V DG EMERGENCY SWBD FROM Section-A of SWBD#6DA	
101	415V DG EMERGENCY SWBD FROM Section-B of SWBD#6DA	
102	415V DG EMERGENCY SWBD#6DG I/C-2	
103	Turbine MCC#6KA I/C-1	
104	Turbine MCC#6KA I/C-2	
105	Turbine Valve MCC#6KB I/C-1	
106	Turbine Valve MCC#6KB I/C-2	
107	RW P/H #6TB IC-1	
108	RW P/H #6TB IC-2	
109	CW P/H #6DF IC-1	
110	CW P/H #6DF IC-2	
111	ACW P/H #OSC I/C-1	
112	ACW P/H #OSC I/C-2	
113	UNIT SERVICE ACDB#6QA I/C-1	
114	UNIT SERVICE ACDB#6QA I/C-2	
115	Fire water P/H #ODB I/C-1	
116	Fire water P/H #ODB I/C-2	
117	FO PH #OSE I/C-1	
118	FO PH #OSE I/C-2	
119	CPU #OSD I/C-1	
120	CPU #OSD I/C-2	
121	DM plant 6 I/C-1	
122	DM plant 6 I/C-2	
123	PT Plant 6 I/C-1	
124	PT Plant 6 I/C-2	
125	ETP #OSF I/C-1	
126	ETP #OSF I/C-2	
127	CWTP #6TC I/C-1	
128	CWTP #6TC I/C-2	
LT Motors		
129	MRS-1	0.5 S Class
130	MRS-2	
131	BOILER FILL PUMP-A	
132	BOILER FILL PUMP-B	
133	AC PLANT CHILLER MOTOR-A	
134	AC PLANT CHILLER MOTOR-B	
135	AC PLANT CHILLER MOTOR-C	
136	Cont.fluid Pump-A	
137	Cont.fluid Pump-B	
138	AOP-1 (MOT)	
139	AOP-2 (MOT)	
140	VACCUM PUMP-A	

141	VACUUM PUMP-B	
142	ACW PUMP-A	
143	ACW PUMP-B	
144	ACW PUMP-C	
145	RAW WATER PUMP-A	
146	RAW WATER PUMP-B	
147	RAW WATER PUMP-C	
148	APH WASHING PUMP-A	
149	APH WASHING PUMP-B	
150	SPRAY MAIN PUMP	
LT MOTORS (HCSD PUMP HOUSE)		
151	GEHO Pump Motor – 1	0.5 S Class
152	GEHO Pump Motor – 2	

Total Meter of 0.5 S Class Accu. 152 Nos.

SIGN OF BIDDER
REQ No. :44018

CHIEF ENGINEER(GEN)
GSECL, UTPS.

ANNEXURE - E

Technical Specification of Ring Type of CT

Ring type CT should be of Resin cast LTCT of accuracy Class 0.5. Current ratio and diameter as mentioned below.

1. **APPLICABLE STANDARDS :** The offered CTs shall comply with IS: 2705/1992 (Part- I & II) and the latest version thereof.

2. TYPE AND RATING OF L.T.CURRENT TRANSFORMERS

a)	Nominal system voltage	: 415 Volts
b)	Highest system voltage	: 660 Volts
c)	Insulation level (HVPF test	: 3 KV voltage for 1 minute)
d)	Frequency	: 50 Hz
e)	Transformation ratios	: As per GSECL requirement.
f)	Type :	Ring Type
g)	Rated output	: 5VA
h)	Class of accuracy	: 0.5
i)	Short time thermal current	: Minimum 5 K Amp. for one second
j)	Rated continuous thermal current	: 120% of the rated primary current
k)	Instrument security factor	: Shall not exceed 5.
l)	Ratio(current)error max.	: Shall not exceed the values prescribed in IS:2705/1992.
m)	Phase angle error max.	: Shall not exceed the values prescribed in IS2705/1992
n)	Temperature rise	: Shall not exceed the values prescribed in IS:2705/1992.

o) CTs should be suitable for indoor installation inside the box.

3.0 GENERAL TECHNICAL DESCRIPTION OF RESIN CAST RING TYPE L.T. CURRENT TRANSFORMERS:

i) The current transformer shall have an opening in the center to accommodate a primary conductor which may be cable / bus-bar. The current transformers shall have rated burden as 5 VA burden for all ratios and class of accuracy as 0.5. The terminals should be complete with connecting screws, nuts and washers. The secondary terminals of LT CTs shall be tin plated brass .

ii) The current transformers shall be of Resin cast type. The L.T. current transformers shall be complete with transparent terminal cover on secondary terminals along with proper sealing arrangement independently.

iii) The minimum internal diameter of the CTs should be as detail :

However at the time of L.T CT installation appropriate size of CT shall be arranged by party. Party also visit Ukai Site before installation of CT.

iv) The polarity marking on the CT primary & secondary side should be engraved.
v) One sealing arrangement should be provide with proper alignment.
vi) For tightening the secondary connection wires in addition to one nut should be provide.

vii) The colour of shall be intimated at the time of order, generally it shall be brick red.

5.0 NAME PLATE AND MARKING:

The ratio, VA burden, class of accuracy, name of manufacturer/monogram & year of manufacturing shall be double etching on the nameplate of CT. The ratio & polarity should be embossed on the body of the LT CTs. In addition name plate of anodized aluminum indicating the necessary details, year of manufacture etc. it shall be provided in such a manner that the information is clearly visible and effectively secured against removal having markings as per requirement of ISS.

LIST OF FEEDER WHERE CT IS REQUIRED TO INSTALL.

CT Requirement

Unit # 3,4 & 5		
415 V Side		
Sr. No.	Feeder Name	
1	SAC-3A	
2	SAC-3B	
3	SAC-3C	
4	CAC-3A	
5	CAC-3B	
6	CAC-3C	
7	SAC-4A	
8	SAC-4B	
9	SAC-4C	
10	CAC-4A	
11	CAC-4B	
12	CAC-4C	
13	AC plant comp.1	
14	AC plant comp.2	
15	AC plant comp.3	
16	SAC-5A	
17	SAC-5B	
18	SAC-5C	
19	IAC-5A	
20	IAC-5B	
21	IAC-5C	
22	C/R-5 AC Plant-5A	
23	C/R-5 AC Plant-5B	
415 V Side buswise location		
24	CHP-1 BUS A	
25	CHP-1 BUS B	
26	CHP-1 Conv 2A	
27	CHP-1 Conv 2A	
28	CHP-1 Conv 2B	
29	CHP-1 Conv 4A	
30	CHP-1 Conv 4B	
31	CHP-1 Conv 4B	

32	CHP-1 Conv 5A	
33	CHP-1 Rotor-A	
34	CHP-1 Rotor-B	
35	CHP-2 Jyoti Bus-1	
36	CHP-2 Jyoti Bus-2	
37	CHP-2 osaka Bus	
38	CHP-2 NGEF Bus	
39	CHP-2 S/R Bus	
40	CHP-2 RFO Bus	
41	CHP-2 Conv 5B	
42	CHP-3 BCN-4 M1, 110KW	
43	CHP-3 BCN-4 M2, 110KW	
44	CHP-3 BCN-6, 110 KW	
45	CHP-3 BCN-5 ,132 KW Motor	
46	CHP-3 WT-4 Main oil pump 160 KW Motor	
47	CHP-3 WT-5 Main oil pump 160 KW Motor	
Unit # 6		
415 V side Unit # 6		
48	6HB BOILER VALVE MCC I/C-1	
49	6HB BOILER VALVE MCC I/C-2	
50	6HD I/C-1	
51	6HD I/C-2	
52	ESP AC & VENT. #6TA I/C-1	
53	ESP AC & VENT. #6TA I/C-2	
54	SB MCC I/C-1	
55	SB MCC I/C-2	
56	Turbine Valve MCC#6KB I/C-1	
57	Turbine Valve MCC#6KB I/C-2	
58	FO PH #OSE I/C-1	
59	FO PH #OSE I/C-2	
60	CPU #OSD I/C-1	
61	CPU #OSD I/C-2	
62	ETP #OSF I/C-1	
63	ETP #OSF I/C-2	
64	CWTP #6TC I/C-1	
65	CWTP #6TC I/C-2	
66	PT Plant 6 I/C-1	
67	PT Plant 6 I/C-2	
LT MOTORS		
68	MRS-1	
69	MRS-2	
70	BOILER FILL PUMP-A	
71	BOILER FILL PUMP-B	
72	AC PLANT CHILLER MOTOR-A	
73	AC PLANT CHILLER MOTOR-B	
74	AC PLANT CHILLER MOTOR-C	
75	Cont.fluid Pump-A	
76	Cont.fluid Pump-B	
77	AOP-1 (MOT)	
78	AOP-2 (MOT)	

79	VACCUM PUMP-A	
80	VACUUM PUMP-B	
81	ACW PUMP-A	
82	ACW PUMP-B	
83	ACW PUMP-C	
84	RAW WATER PUMP-A	
85	RAW WATER PUMP-B	
86	RAW WATER PUMP-C	
87	APH WASHING PUMP-A	
88	APH WASHING PUMP-B	
89	SPRAY MAIN PUMP	
CW PUMP/EMD (COM.)		
90	Fire Hydrant Pump A (75 KW)	
91	Fire Hydrant Pump B (75 KW)	
92	Fire Hydrant PumpC (90KW)	

Total CT Requirement **92 Set.**

SIGN OF BIDDER
REQ No. : 44018

CHIEF ENGINEER (GEN)
GSECL, UTPS.

ANNEXURE – F
LIST OF CLIENT PC TO BE INSTALL FOR EMS

LIST OF CLIENT PC TO BE INSTALL FOR EMS	
1	CE (Gen),UTPS
2	ACE(G),UTPS
3	Unit-4 C/R
4	Unit-5 C/R
5	220KV S/Y C/R
6	Unit-6 C/R
7	400KV S/Y C/R
8	Coal Yard C/R
9	EE (Electrical Testing)
10	SE (Electrical)
11	EE (Efficiency)
12	EE (EMS cell)

SIGN OF BIDDER
REQ No. :

CHIEF ENGINEER (GEN)
GSECL, UTPS.

ANNEXURE - G
EXPERIENCE DETAILS OF EXECUTED PROJECT

Sr. No.	Name of company/organisation where the project is executed	Order No & date	No of Quantity (energy meters) executed i. e. connected with EMS	Period of project execution		Attachment of Supporting documents(Work completion certificate, No objection certificate, Order copy)	Remarks
				Project start Date	Project completion Date		

SIGN OF BIDDER
REQ No. :

CHIEF ENGINEER (GEN)
GSECL, UTPS.

ANNEXURE - H

PERFORMANCE CERTIFICATE DETAILS

Bidder shall furnish here a list of performance certificate for the projects executed as per annexure – G for continual three years in service of executed project and name of persons to whom the reference may be made by the purchaser in case he considers such reference necessary.

Name of the purchaser/Owner with full address	Location of the Plant/Equipment	Date of commissioning	Performance certificate of continual three years in service of executed projects submitted	Details of Equipment supplied & installed	Persons to whom reference be made with name & contact details

SIGN OF BIDDER
REQ No. :

CHIEF ENGINEER (GEN)
GSECL, UTPS.

ANNEXURE-15

GUARANTEED TECHNICAL PARTICULARS

(It must be filled in and authorized stamp & signed by the Bidder)

ITEM NUMBER	DESCRIPTION OF SUPPLY /WORK	Quantity	UNIT	Specify the Make Offered	Complied (YES/NO)	Supplier's Remarks
A	**Energy Meters : As per Technical Specification Annexure B**					
1	HT Meter 3P4W Class 0.2s with Ethernet Port	263	Nos.			
2	HT Meter 3P4W Class 0.2s with Ethernet Port - Spare Meters	20	Nos.			
3	LT CT Meter 3P4W Class 0.5s with Ethernet Port	152	Nos.			
4	LT CT Meter 3P4W Class 0.5s with Ethernet Port - Spare Meters	15	Nos.			
B	Software for Online Data Monitoring and Report generation with 25 Clients License : **Minimum Technical Specification :**	1	No.			
C	**Supply of Resin Cast Ring Type LT CT of Class 0.5 Minimum Technical specification : Annexure E**					
D	**Communication & other Miscellaneous Hardware Minimum Technical Specification : Annexure C**					
D1	Desk Top PC with Windows Professional Licensed OS Approved Make : DELL/HP	12	Nos.			
D2	3 Core 2.5 Sq. mm M/S PVC insulation aromoured cable	9,300	Mtrs.			
	Total Hardware for and accessories for Optical Fiber Network					
E	**OFC Hardware All Below hardware shall Strictly be in Compliance with the Specifications given in Document Technical Specification for Network Passive Components : Technical Specification Annexure C**					
E1	LAN Cable for Meter Communication, CAT6 A 10G	45	Nos.			

	Shielded LSZH U/FTP Cable Technical Specification Annexure E- Clause E1 Approved Make : Systimax / Molex / Panduit / Simons					
E2	SITC of PowerCat 6 Jack RJ45 568A/B STP/FTP as per Technical Technical Technical Specification Annexure E- Clause E2/E3 Approved Make : Systimax / Molex / Panduit / Simons	500	Nos.			
E3	SITC of Synergy Wall Plate 1 Port - 86mmx86mm- Including Back Box / Co-Box Technical Specification Annexure E- Clause E2/E3 Approved Make : Systimax / Molex / Panduit / Simons	500	Nos.			
E4	structured Network termination between LAN and Meter, Cat 6 STP/FTP 568A/B LS0H - 2m as per Technical Technical Specification Annexure E- Technical Specification Annexure E- Clause E4 Approved Make : Systimax / Molex / Panduit / Simons	500	Nos.			
E5	SITC of 24 Port Patch Panel RJ45 568A/B STP/FTP C6 - 1U as per Technical Technical Specification Annexure E- Clause E5Approved Make : Systimax / Molex / Panduit / Simons	36	Nos.			
	FIBER PART					
E6	Optical Fiber Cable 12F Outdoor - Armoured Loosetube Construction Single Mode as per techincal specification Approved Make : Systimax / Molex / Panduit / Simons	15,000	Mtrs.			
E7	Intelligent Singlemode 24P Duplex LC Fibre Patch Panel Approved Make : Systimax / Molex / Panduit / Siemon	2	Nos.			
E8	Intelligent OFPC LC-LC DUP SM OS1 LS0H - 3mm Patch cords Approved Make : Systimax / Molex / Panduit / Siemon	12	Nos.			
E9	24 Port Configurable Fibre Sliding Drawer - Unloaded ComponentsApproved Make : Systimax / Molex / Panduit / Siemon	23	Nos.			
E10	LC Duplex 12 Fibre SM Adapter	46	Nos.			

	Plate - Blue, With Splice Tray and Blanking Plates as per requirement(s) Approved Make : Systimax / Molex / Panduit / Siemon					
E11	LC type Pigtail SM 1.5 mts Approved Make : Systimax / Molex / Panduit / Siemon	552	Nos.			
E12	LC-LC type Patch cords SM 3 mts Duplex Approved Make : Systimax / Molex / Panduit / Siemon	310	Nos.			
E12.a	SITC of Splice tray Approved Make : Systimax / Molex / Panduit / Siemon	23	Nos.			
E12.b	SITC of Blank plates Approved Make : Systimax / Molex / Panduit / Siemon	46	Nos.			
	Intelligent Passive Infrastructure Solution Scanner & software					
E13	Intelligent Scanner 576 Channel , for Intelligent Fiber Patch Panel Approved Make : Systimax / Molex / Panduit / Siemon	1	Nos.			
E14	Intelligent Scanner 96 Channel PP License : License from Authorized OEM to be provided Approved Make : Systimax / Molex / Panduit / Siemon	1	Nos.			
E15	Intelligent Server Application License (Same make of Passive Components) - License from Authorized OEM to be provided	1	Nos.			
E15.a	SITC of CAT 6 Patch cord, 2 Mtr, Orange -LSZHT Approved Make : Systimax / Molex / Panduit / Siemon	2	Nos.			
E16	Core Level: Advance Layer 3 Fully Managed 24 Ports Combo Gigabit Stackable Switches. Network Switch : Layer 3 Enterprise Managed Network with Combo 24 Base-X SFP Ports / Base-T Copper Ports + 4 SFP+ Ports & Should have Additional Module Slot to Support 2x40G Slots. The Switch shall be Supplied with all the Required Licenses for L3 Features.The Switch shall be Stackable & shall be used in Active-Active Failover Mode at the Central Location. The Required Stack Module / Stack Cables shall be Supplied.	2	Nos.			

	Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade					
E17	Gigabit Enterprise 8 Port 10/100/1000 Base-T Copper Ports + 2 SFP Ports Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃The Edge Level: Enterprise Grade layer 2 Fully Managed 8 Ports Gigabit Switches.Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	6	Nos.			
E18	Gigabit Enterprise 16 Port 10/100/1000 Base-T Copper Ports + 2 SFP Ports Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃ Edge Level: Enterprise Grade layer 2 Fully Managed 16 Ports Gigabit Switches. Approved Make : Allied Telesis / Cisco / Juniper / Arista	12	Nos.			
E19	Gigabit Enterprise 24 Port 10/100/1000 Base-T Copper Ports + 4 SFP Port Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃ Edge Level: Enterprise Grade layer 2 Fully Managed 24 Ports Gigabit Switches. Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	13	Nos.			
E20	1000 BaseLX (10km) SFP Module (Transciever)The SFP Module (Transciever) shall Preferably be of the Same make as that of the Network Switch. Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade	56	Nos.			
E21	License key for NMS Enterprise Edition 100 Starter. Supports 100 managed nodes (or subscriber CPEs) and 5 NMS clients. Approved Make : Allied Telesis / Cisco / Juniper / Arista	1	Nos.			
E22	Server for NMS Software & Intelligent Passive Infrastructure Solution Software Approved Make : Dell / HP / IBM	2	Nos.			

	NETWORK RACK PART					
E23	Wall Mount 12U x 600mm W x 500mm D ,Front Glass Door (tinted, Toughened) with Lock & Key, with 2 Fan, 5 Socket Power strip with Fuse, MCB, Hardware screw packet - 1 nos and pvc box type cable Manager - 2 Nos Approved Make : Valrack / WQ / APW	2	Nos.			
E24	Floor Standing 22U x 600mm W x 800mm D ,Front Glass Door (tinted, Toughened) with Lock & Key, with 2 Fan, 5 Socket Power strip with Fuse, MCB, Hardware screw packet - 1 nos and pvc box type cable Manager - 4 Nos Approved Make : Valrack / WQ / APW	2	Nos.			
E25	42U, 800 x 1000 MM Depth Floor standing Perforated Door Rack with 10 Socket 5/15 AMP - PDU with Fuse & MCB- 2 Nos, Hardware screw Pkt - 1 Nos, 4 Nos of FAN, Hard ware tray - 1 Nos.Approved Make : Valrack / WQ / APW	2	Nos.			
E26	Supply of 25 mm HDPE for Cat6 Cabling along with proper fittings & Clamps	8,000	Mtrs.			
E27	Supply of 32 mm HDPE for Cat6 Cabling along with proper fittings & Clamps	3,000	Mtrs.			
E28	Supply of 40 mm HDPE for Cat6 Cabling along with proper fittings & Clamps	2,000	Mtrs.			
E29	Supply Of 25 mm ISI HDPE Pipe for fiber laying on wall with proper clamps/underground .	15,000	Mtrs.			
E30	Supply Of 1 inch G.I. ISI marked Pipe	100	Mtrs.			
E31	25mm Flexible pipe	1,000	Mtrs.			
F	**Data Center H/W**					
F1	Application server (Minimum Technical Specification) Intel Xeon E5-2600 v2 or E5-2600 v3 series Processor. Server should provide an intelligent socket that would ease the installation of CPU to avoid errors caused by mis-inserting processors during install or upgrade, 2 processor scalable, 3.0Ghz or Higher, 16 Core, 8MB Cache or higher, 4x8GB Memory (Proposed memory should	1	No.			

	support reliably identify and verify whether installed memory has passed the rigorous OEM qualification and testing process to increase system reliability), 2x600GB SAS Hard disk drive should support "Do Not Remove" caution indicator to avoid human errors in replacing failed HDD Hot Swap, DVD RW, Integrated RAID 0,1 Display Screen size & type: 22" or higher wide range TFT/LCD , Flat Monitor OS : Windows Server 2012 Std Edition					
F2	Database server , - Main (Minimum Technical Specification)Intel Xeon E5-2600 v2 or E5-2600 v3 series Processor. Server should provide an intelligent socket that would ease the installation of CPU to avoid errors caused by mis-inserting processors during install or upgrade, 2 processor scalable, 3.0Ghz or Higher, 8 Core, 12MB Cache or higher, 4x8GB Memory (Proposed memory should support reliably identify and verify whether installed memory has passed the rigorous OEM qualification and testing process to increase system reliability,4*500GB Hot Swap SAS/SATA Hard disk drive should support "Do Not Remove" caution indicator to avoid human errors in replacing failed HDD, DVD RW, RAID 0,1, 5OS : Windows Server 2012 Std Edition	2	Nos.			
F3	Laptop - PC, Approved Make DELL, HP	1	Nos.			
F4	SQL Server 2012 Standard Edition- CAL based	1	No.			
F5	Windows server 2012 standard addition.	25	Nos.			
F6	Ethernet Switch 24 Port , managed	1	No.			
F7	Network rack for Server & Switch (Size : 42U)	1	No.			
F8	Firewall :Firewall Throughput-950 Mbps, Firewall Throughput (Packets Per Second) 180 Kpps,					

	Concurrent Sessions (TCP) 900,000, New Sessions/Second (TCP) 15,000, IPsec VPN Throughput (512 byte) 1 75 Mbps, Gateway-to-Gateway IPsec VPN Tunnels 200, Client-to-Gateway IPsec VPN Tunnels 250, SSL-VPN Throughput 35 Mbps, Concurrent SSL-VPN Users (Recommended Maximum, Tunnel Mode) 80 SSL, Virtual Domains (Default / Maximum) 5 / 5, High Availability Configurations Active/Active, Active/Passive, Clustering					
F9	Connecting cables , Connectors , other miscellaneous hardware required to complete this metering scheme at Central Station	415	Nos.			
F10	Online UPS :- 5 KVA range: External batteries with 30 Min. backup , rack for batteries.	92	Nos.			
F11	Laser Printer B/W, Laser A-4, Heavy Duty-minimum printing per month : 3500 per month	1	Nos.			

SCOPE OF WORK

The overall scope of work shall include the following but not limited to and conformation to completion of project on turnkey basis in all respect.

A.) SCOPE OF SUPPLY

1.0 The project is on turnkey basis and all items as required for completion of project shall be supplied by single bidder only.

2.0 Supply of Energy meter, Approved Make: Secure/Schneider /Masibus/ Siemens / Conserve. The Supplied meters shall fully comply with basic specifications as attached in Annexure - B.

3.0 Supply of Energy Monitoring Software as per requirements listed by GSECL Ukai.

4.0 Supply of Server Grade PC, Client PC, Laptop - PC with lifetime valid license software & necessary operating system with antivirus and required related systems. The Server Machine, Client Machine and Laptop should comply with minimum Specification(s) as listed in technical specification of LAN.

5.0 The single bidder has to supply whole energy management system & time synchronizes with existing GPS including cabling/wiring/creating multiple points from available point of GPS lying in plant. which Includes supply and retrofitting energy meters, energy management software, provision of CT(where not provided) High speed low loss data cable, Ethernet converter, connector kit, Meter networking cable, & its peripherals with software etc as required in whole project. Power supply cables for various instruments, data converters, data logger, control room equipment etc. is in the scope of bidder. Cabling accessories for the data cables like lugs, tying sleeves, cable trays (if necessary) etc. is also in scope of the bidder.

6.0 The scope includes Supply of blanking plate for installing new Energy Meters, cables, wires, consumable items like lugs, connectors, screws, ferules nut bolts and all other accessories which are necessary for aesthetic view & satisfactory operation of complete EMS system though not individually or specifically mentioned herein.

7.0 The Bidder should submit the bid considering minimum quantity as identified and mentioned in Annexure – A, However for the consumable items Viz, Supply of OFC cables, Power/Wiring cables, Cable laying etc shall be paid based on actual work executed and there-on verified by Authorized GSECL – official.

Also, Note that all additional cost in line with supply of consumable items shall be borne by the customer.

E.g. : If OFC Cable minimum quantity as per GTP = 15000 Meters. The bid should be submitted for 15000 meters of cable only.

Case : 1 : If actual cable used = 13000, Payment as per 13000 meters only.

Case : 2 : If actual cable used = 15500(Or More), Payment as per 15000 only.

8.0 The bidder should visit the Power Station/Site to access the requirement, quantum of work, dimension detail & any other information/requirement of data to fulfill the job etc before submitting the bid.

9.0 The CT's should be supplied in full compliance to specifications as mentioned in technical specification of current transformer. The quantity (1 set = 3 Nos. of CT) of CT's to be supplied is clearly mentioned.

10.0 Any other material which is not specified but necessary to supply to ensure completion of the job shall be the responsibility of the bidders.

B.) Technical Specifications of Energy Monitoring Software

1. The basic need of EMS is to monitor and record energy data from all the metering nodes over TCP/IP. The software shall support 100% additional nodes for future additions & shall have facility to connect the future energy meters.
2. The software shall provide facility for on-line data display for all the metered parameters from all metering nodes included in the scope of EMS System through over TCP via LAN/OFC network to a

centralized computer having suitable data storage facility. It is required to have communication of meters directly over TCP without use of intermediate convertors/DCU etc. This is to ensure minimum spares and intermediate failure points in the system.

3. The software shall ensure minimum data back-up of 90 days for instantaneous parameters and 365 days of Load-survey(LS) parameters with (LS Params - 30 min IP for 6 Parameters).
4. The maximum allowed data polling frequency per meter should not exceed 60 Sec.
5. The proposed software should be a web-based solution and would be hosted over GSECL intranet. (Band-width required over intranet shall be provided by GSECL)
6. The Supply and Installation of Hardware Servers for running the EMS software shall remain in the scope of the suppliers. High end servers of Approved Make Dell/HP shall be provided by the supplier. The minimum specification of hardware servers shall be as per specified in technical specification.
7. To ensure an fail-safe system the supplier shall provide 1 No. back-up server, where-in all system data is automatically updated and restored in case of any critical failure of the main-server. It is recommended that the configuration of the back-up server is equally matching the Main server system to allow for 100% contingency.
8. The Supply and installation of 12 No. Client machines for viewing of EMS software data and reports shall remain in the scope of the supplier. The minimum specification of client machines of approved make Dell/HP shall be as per specification.
9. The server and client machines should be pre-loaded with all licensed OS and components.
10. The software should provide selective client login facility for viewing of on-line data.
11. The software should have user interface to define and add new meters or modify existing meter information into the EMS system without the help of supplier. Proper training in this line shall be given to GSECL representative. Facility required for meter points-Add, delete & modify.
12. The software should provide web forms for all required configuration activity to run the EMS system. This ensures that the configuration activity can be done from any of the client machine(s) with apt login credentials.
13. The software shall provide with reports as per GSECL requirements. The general report formats shall be provided to the successful bidder. The reports could be viewed in tabular and/or graphical formats.

    Viz. Hourly, Daily, Shift wise, Weekly, Monthly, Yearly, interval wise, X-bus generation & custom defined group wise Customized report format for UTPS, GSECL (including minimum & maximum, polling interval, meter replacement, meter detailed report – The formats will be indicated during commissioning. The reports of energy management system must incorporate daily unit wise auxiliary consumption, Daily/ instantaneous, total daily auxiliary consumption, daily system wise auxiliary consumption or as required by GSECL. The report presentation should be discuss with GSECL engineer and accordingly finalize.
14. The software shall have provision to print the reports in standard excel and pdf formats.
15. The software shall have provision to automatically schedule e-mailing of selected reports over outlook system. The configuration information necessary for integration of EMS system with GSECL mailing system shall be provided to the successful bidder.
16. The software shall communicate with all meters directly over TCP-Modbus thus eliminating intermediate hardware maintenance and look-up over longer periods.
17. Virtual Metering Facility : EMS software provides interface/GUI facility to virtually create metering groups as per user requirements and can monitor & analyze multiple locations under single view using virtual metering concept. This allows grouping of independent metering points to generate a virtual metering point. This shall detailed analysis of similar types of grouped loads/feeders for energy conservation and monitoring purpose.

    E.g. → A Virtual group of all auxiliary metering points in the entire plant.
18. EMS System shall have feature to disable particular Network/Device/Tag without disturbing rest of the network.
19. Alarms and Notification for Electrical Conditions : EMS software shall continuously monitor for abnormal system conditions Viz(List of Alarms) and display alarms details and values for all average parameters of the feeders.
20. Alarms and Notifications for network health : The supplier shall provide apt facility to continuously monitor the network condition(s). In-case of any network issues appropriate alarm notification should be generated clearly stating the condition and location of fault.

21. The EMS system should allow multiple clients (Work station) to simultaneously access the data at all times. Currently 12 Nos. of clients have been required. The system should be scalable to support at least 25 independent and concurrent clients. All clients may view same or different data at any given point of time.
22. Facilities required for dispatch of reports through Email IDs.
23. The supplier shall Prepare and furnish installation & commissioning instructions and product operational manual for energy management system with all operational features.
24. The EMS system should have facility of collecting Missed Data from the meter in case of LAN disruption or other communication failure(s). Viz. The meter stores 30-60 days of LS data, in case of communication failure between the meter and s/w the software should have capability of identify and update the missed data automatically on communication restoration.
25. The EMS system should support OPC server version standard DA V2/V3 or higher to send data to any other online software system.
26. The software to communicate
    - 26.1 Modbus RTU protocol over TCP Ethernet
    - 26.2 ODBC Connectivity
27. Back up of Software installed to UTPS, GSECL EMS shall be provided by five CD/DVD.
28. TCP/IP protocol /Ethernet shall be used as backbone to transfer the Data.
29. Display Screen :
    - 29.1 The web display shall be login controlled. The software shall provide web based interface for client machines to allow all user to select and login to any required screen from all the clients. E.g. It should not be that client machine in station – 1 will only display static data/screen on station – 1, with proper login credentials person sitting at station -1 shall be able to view the data/screen of station – 2 also.
    - 29.2 The software shall provide individual viewing screens or Mimic as per GSECL requirement(s) for all the feeders with Kwh reading.
    - 29.3 The software shall provide customized Matrix or Tabular screen for all the feeders/incomers grouped together with Kwh reading.
    - 29.4 The software shall provide SLD mimic with on-line data for metering parameters.(Instantaneous Voltage, Current, Load) – Minimum 5 parameters. The user should be able to create the
    - 29.5 Customized web-based Dashboard screens for Operator level, Maintenance manager level and CFO level.
30. The EMS System should have facility/provision to connect to internet and provide remote support regularly during warranty period. GSECL to provide required internet facility for remote connection.
31. Any software updates, the bidder shall provide free of cost within the warranty period.
32. The scope includes ensuring the following:
33. The EMS Software has lifetime valid license software & necessary operating system, antivirus.
34. The Hardware network must be on fiber optic base, and meter communication Modbus RTU directly over TCP/Ethernet. wireless network is not allowed.

C.) SCOPE OF SERVICES

The bidder shall provide the following services for ENERGY MANAGEMENT SYSTEM AT UTPS under the scope of these specifications.

1. The scope of work is on turnkey basis and includes complete design, supply, installation, testing and commissioning and handing over of “On line Energy Management system for GSECL, UTPS” as per specifications.
2. The detail of existing and proposed energy meter with CT, PT is given with this specification, however bidder should visit the Power Station to access the requirement, quantum of work, dimension detail & any other information/requirement of data to fulfill the job etc should be ensured before submitting the bid.
3. The energy meters are to be placed in different switchgear rooms at various locations of the plant, (Basic Layout of plant as with distance approximation have been provided) which need to

be integrated through dedicated fiber optics network. Agency may visit the plant before quoting, to get an idea of the various inputs needed for designing the suitable Energy Management System (EMS). In addition to this a layout of different blocks, Single Line Diagram (SLD) and locations of switchgear may also be obtained.

4. Current requirement for EMS to support 500 meters, however the system shall be designed to take care of future additions and capable of handling at least 1000 meters without any changes either in software. That is the main reason why high-end server machines have been included in the specification.
5. In each loop there should be a provision for addition of at 20% more meters without sacrificing the speed of the system.
6. After design of the system agency has to submit the complete data sheet & drawing for approval of UTPS, GSECL. Only after obtaining the approval in writing, the vendor may proceed with manufacturing activities.
7. Installation & commissioning includes programming of energy meters, installation of PC and its peripherals, interfacing system with energy meters, report customization & analysis.
8. It is expected that flush mounting arrangement shall be provided for all the meters, Only under specific condition after consultation of GSECL approval projection mounting may be allowed. Scope of Meter installation activity shall include but not limited to removal of old meter, Panel cutting for new meter, Supply and installation of back-plate with similar color, generate cable harness for new connection, Extension of CT and PT connections where-ever required, installation of new CT where-ever required, supply and installation of fuse arrangement for meter auxiliary supply, meter connection, ferruling, cable dressing (using good quality cable tie), Installation of meter(s), Termination of cables for connection to LAN switch, ensure correct phase association, CT polarity and other instantaneous parameters, meter configuration(Set Baud-rate, IP-configuration, CT and PT ratio for each meter, ensure communication of each meter with the S/w system.

   Note : Supply of items and management for tools and equipments required for all of the above installation activity shall remain in the scope of the supplier. All installation shall be executed by skilled personnel under apt approval and verification of GSECL Authority.
9. Any changes required to be done in the software or format during work execution period shall be done by agency without any extra cost.
10. For the auxiliary supply extension to the meters agency has to wire from the existing identified fuse outgoing point to the meter.
11. The installation work may have to be carried out in phases as per availability of shutdown. However if due to some unavoidable reason shutdown could not be given in the system, then party has to arrange to carry out the job during the available shutdown periods.
12. No men & material will be supplied by UTPS, GSECL. GSECL will provide necessary shutdown and provide store room to keep material during commissioning.
13. The successful bidder shall share the details of communication protocol used for communication.
14. The cables are to be laid in existing trenches/trays where ever it exists by removing covers/slabs and making it good after work. Proper routing including putting the cables in flexible hoses is in vendor's scope.
15. The agency has to provide & fix suitable casing & capping arrangement as per specification approved for laying the LAN/Data cables in harmony with surround. The lugs, glands & cutting of glands in exiting gland plate without removal of gland plate is in the scope of agency.
16. The Bidder has to give warrantee as per standard terms and conditions after commissioning at UTPS, GSECL for the system along with components & peripherals. Further any break down in the system within this period shall be attended within 3 days of intimation with their own cost.
17. As the job may be required to be carried out in HT/LT panels in running/shutdown, all the manpower deputed in site should be skilled, well experienced and should follow UTPS, GSECL safety norms.
18. The Party has to start work of Installation & commissioning of Energy Monitoring System immediately after issuing work order and has to complete within twenty four months after starting as per instruction of Engineer in charge.
19. Labor and equipment for unloading and erection/installation of bidder's supplied equipment, shifting of new supplied items from main Store to required site are in bidder's scope and same

shall be carried out under supervision of bidder. Bidder is responsible for any damage during shifting.

20. The scope includes installation of new panels with required mounting hardware, blanking plates, Glands, earthing strip, relevant fabrication etc. with covering of remaining portion of Cable trench.
21. The scope includes any type civil work if require for installation of new panels.
22. The scope includes all hard and soft-digging, laying of GI Pipes, LAN and OFC cables as required for successful execution and completion of the project.
23. For network passive components, bidder shall ensure 25 years performance warranty certificate from OEM of network passive components. This is required to issue work-completion certificate.
24. Secondary of Current Transformer shall be terminated on disconnecting type terminal connectors, if not available in existing panel. The PT&CT Wires shall be color coded.
25. The work should be executed as per the instruction of Engineer In-charge of the project and his decision will be final for any matter.
26. Any defects found in Energy meters, panel, communication equipments, computer, software or any other items supplied by party during testing at site shall be replaced by party at free of cost without delay, which include transportation and taxes.
27. The bidder shall depute their Engineer, technicians to the site for carrying out the retrofitting work, testing and commissioning of energy meters, schemes etc and all work must done under the supervisor of bidder.
28. Communication protocol used for communication should be widely used protocol in India. The supplier should share the complete details of the protocol communication and Memory mapping data of each meter. The software should enable collection of data, viewing of data in graphical and tabular formats and processing of data as desired using standard, widely used package such a MS Excel. It should have facility to use MS Access/MSSQL for same purposes.
29. The scope includes training to site engineers at supplier's works free of cost. The minimum number of engineers for training at supplier's works shall be ten.
30. Subletting of contract to any other party or subcontract is not allowed without prior return approval/ permission.
31. The items / services required other than mentioned in the bill of material which is required to complete the project shall be supply/done by party at free of cost including transportation

Keeping in view, the above scope of work, the bidder shall furnish sequence of activities to be carried out to avoid / minimize the generation loss, likely to occur during above works. The bidder shall note that above work shall be completed within fifteen to twenty days of Unit shut down period. The bidder shall also note that there may be uncertainty of Shutdown due to grid exigency. However, no additional cost/ compensation on this account shall be entertained.

Signature of contractor
With Rubber Stamp

Chief Engineer (Gen.)
GSECL: TPS: UKAI.

PART –A

TERMS AND CONDITIONS:-

1. Payment shall be made for actual work carried out by party as per the rate of schedule-B.

2. **SECURITY DEPOSITE CUM PBG**:

The successful tenderer will be required to pay an amount equivalent to 10% of the value of the order [End Cost] against letter of intent within 15 days as per GOG guideline as a security deposit cum Performance Bank guarantee (PBG) for satisfactory execution of contract. Such security deposit cum PBG will be payable either in DD/ Bank guarantees. Bank guarantees will be acceptable if issued by bank of Baroda and State Bank of India. The Bank guarantees will be executed on the standard form prescribed by the GSECL. In case of the bank Guarantees furnished / submitted, they should have clear one time validity till the completion of the order guarantee period in all respects and up to expiry of guarantee period from the date of receipt of the last consignment. Bank guarantees for interim period will not be allowed. If by any reasons the supply period is extended then supplier should undertake to renew the Bank guarantees at least 01 month before the expiry of the validity failing which GSECL will be at liberty to encash the same.

3. Payments: -

(I) Supply portion

(a) 70% of supply prices shall be released within 45 days on receipt of material at Ukai TPS site.

(b) 10% of supply prices shall be released within 30 days on successful commissioning of the panels & energy meters.

(c) Balance 20% of supply prices shall be released on successful completion of testing and commissioning job in all respect. Submission of performance bank guarantee of 10% of order value will remain valid up to Guarantee / warranty period.

(II) Works portion

a) 100% of work commissioning amount will be pail after one month of complete commissioning & clearance of all pending points.

4. Penalty: The replacement of Energy meter, CT, Mounting Plate, Aux Power Cables, CT/PT cable, panels work or communication with server/client/energy meter after completion of contract period will attract penalty & will be charged at the rate of ½% of the delayed work part per day with a maximum limit of 10% to the amount of contract value or as decided by the competent authority.

5. Unsatisfactory progress of the work:- In case the work of party is found unsatisfactory or not progressing according to the requirement, the company may take such actions as deem fit to see that the work is completed in time with other experienced party at contractors risk and cost. The charges for such work plus 15 % supervision will be recovered from contractor.

6. Manpower requirements:- The party should take care and Provide sufficient manpower with require tools and tackles. The party shall keep skilled/experienced manpower and supervisor/Engineer to carry out this work.
7. Employ's insurance:- The contractor has to employ manpower duly insured including him for this work and has to use all safety equipments required. GSECL shall not be responsible for any loss or accident and other such hazards to any of Contractor's workers or contractor during execution of this work.
8. Submission of bill: - Party shall submit the bill in triplicate along with one copy of work reports.
9. The general rules and regulations of the GSECL for tender and contract for works shall be applicable to the party. The Contractor is deemed to have gone through it and considered to be fully aware of this condition mentioned in the work booklet. All terms and condition of works booklet of GSECL shall be applicable to the contractor in general.
10. GSECL shall not be responsible for any injury or accident to the person of contractor while working. He should take risk policy as per rules. Moreover, the contractor shall be fully responsible for any damage caused to the Corporation's properties done by his man/materials while executing the work. The Corporation will be entitled to recover the damage from the party's bill.
11. The party shall comply all safety & security rules and regulation of GSECL.
12. Party will have to carry out the work as per availability of outages of unit/feeder and / or its associated feeders and replacement work of Energy meter, CT, Mounting Plate, Aux Power Cables, CT/PT cable, panels shall be completed in minimum possible time. Maximum permissible time per feeder will be one days.
13. The bidder has to mention P.F. code of the persons working for the job at the time of bidding the tender.
14. Performance Guarantee: The bidder shall have to give performance guarantee for their product valid for 18 months from the date of receipt of materials or 12 months from the date of final commissioning of project whichever is earlier and bank guarantee of 10% of the order value of nationalized bank only against standard performance guarantee shall be furnished as per enclosed prescribed format on non-judicial stamp paper value of Rs. 100/-(Non judicial), the supplier should undertake to renew the BG a least 1 month before the expiry of the validity of bank guarantee failing which GSECL shall be at liberty to encase the Bank Guarantee. Free service and free replacement shall be provided by the contractor against inferior quality of material used & poor workmanship in the retrofitting work during the guarantee period. The guarantee period will be reckoned from the date of re-commissioning work/ replaced major component.

15. The expenses for lodging, boarding and for to & for traveling shall be borne by the party for their persons.
16. On completion of the work, the site shall be cleared by the contractor within the stipulated period, and ground brought to original stage and they shall not be entitled for any extra claim on this account.
17. All the materials used shall be new & of tested quality confirming to applicable national or manufacturer's standard. Equipments shall be transportable to & capable of installation at site with easy & without damage. It shall give continuous, reliable operation over long periods under worst specified site condition. All renewable & similar parts shall be interchangeable. All components & equipments as a whole shall be designed to withstand the extremes if all magnetic, electrical, mechanical & thermal stresses which may be encountered during its normal & abnormal operating conditions

18. Each Client shall be provided with name plate.
19. Equipment shall be completely assembled at the works to ascertain that all parts fit correctly. Maximum possible wiring & assembly of components shall be carried out before dispatch to minimize the erection time at site. All assemblies shall be properly match –marked to facilitate correct & proper erection at site.
20. Party should provide genuine purchase proof of used material in project for all the items .i.e. from Authorized dealer or OEM.
21. Party should submit System Architecture and spare list with Technical bid along with Technical literature of spares with all technical details for easy of scrutiny.
22. Party can visit the site before quote for any confusion or difficulty.
23. Any terms and conditions mutually agreed in writing shall be for a part of the contract.
24. In case of any conflict in terms and condition or any dispute/discrepancies the decision of C E (Gen) GSECL, Uki TPS will be final.

SIGN OF BIDDER
REQ No. : 44018

CHIEF ENGINEER (GEN)
GSECL, UTPS.

Part B GENERAL CONDITIONS OF CONTRACT:-

1. The 'Contract' means the documents forming tender and the subsequent agreement that may be entered into.

2. The work and or works means Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters of Ukai TPS. as detail specified in specifications and instruction of Engineer In charge.

3. The 'Contractor' means a firm or an individual undertaking these work.

4. **Earnest Money Deposit:-**

The tender should be submitted with Earnest Money Deposit (EMD) at the rate of 1% of estimated cost of the tender, without which tender is liable to be rejected.

5. **Security Deposit**:-

Successful bidder shall have to pay Security Deposit (SD) *equivalent to 10 % of the order end value including service tax within fifteen days after receipt of LOI or final work order by D.D. drawn in favour of GSECL payable at Bank of Baroda, Ukai branch or S.B.I., Ukai branch OR by in form of Bank Guarantee or NEFT/RTGS***.** Failure to deposit the SD will entail for failure of EMD and the contract shall be treated as terminated. You shall not be, allowed to start the work if, SD is not paid before the stipulated period. Any loss to the GSECL due to late start of work because of late payment of SD shall be contractor's liability.

SD & EMD will be accepted in form of Bank guarantees issued by ….

- ➔ Any nationalized bank including the Public Sector bank - IDBI Bank Ltd
- ➔ Private Sector Banks authorized by RBI to undertake state government business (AXIS Bank, ICICI & HDFC Banks)
- ➔ Guarantees issued by following banks will be accepted as SD/EMD for the period up to-

Kotak Mahindra Bank (Commercial Bank)

Saurastra Gramin Bank (Regional Rural Bank of Gujarat)

Baroda Gujarat Gramin Bank (Regional Rural Bank of Gujarat)

Dena Gujarat Gramin Bank (Regional Rural Bank of Gujarat)

The Kalupur Commercial Co-operative Bank Limited of Gujarat

Rajkot Nagrik Sahakari Bank Limited of Gujarat

The Ahmedabad Mercantile Co – Operative Bank Limited of Gujarat

RBL Bank (The Ratnakar Bank Ltd.)

Induslnd Bank

Karur Vysya Bank

DCB Bank

FEDERAL Bank

The Ahmedabad Mercantile Co-operative Bank Ltd.

The Mehsana Urban Co-operative Bank Ltd.

Nutan Nagrik Urban Co-operative Bank Ltd.

YES Bank

6. Sublet or transfer of contract without prior written approval of G.S.E.C.L., will be treated, as breach of contract and it will be punishable by forfeiting the Security Deposit as well as termination of contract.

8. The G.S.E.C.L. reserves the right to forfeit the S.D. in case of any breach of any condition of contract and in case of dispute, the decision of C.E., G.S.E.C.L Ukai TPS. shall be final and binding and shall be acceptable to the contractor.

9. **WAGES TO BE PAID AND TIME OF PAYMENT ETC. BY THE CONTRACTOR**

a) The contractor shall pay minimum of as prevailing wages declared by Govt. from time to time, or as may be specified hereinafter or rates fixed under the minimum wages act, whichever is higher. The wages of every contract labour employed by you under this contract shall be paid by contractor before the expiry of 10^{th} days of the last day of the month in respect of which the wages are payable (i.e. wages of a month have to be paid by contractor in the first week of the next month.) The payment of the wages shall be deposited in the any Nationalized/Co-operative Bank every month and statement for the same shall be presented or produced to the HR Department every month in token of timely disbursement of the minimum wages. The contractor shall get the entries certified in the; register of wages by the representative of the G.S.E.C.L. Any default will result in cancellation of contract forthwith or else contractor shall be punishable to the extent of Rs. 100-00 fine per each day.

b) The contractor shall give his telephone number / mobile number and residential / office address to the G.S.E.C.L. so that In case of labour trouble etc, the contractor can be intimated. The contractor shall arrange to have his office outside the factory premises and the contractor shall keep himself / his authorized representative, present throughout the working hours.

c) It should be ensured that all the contract labours are covered under the provident fund scheme and employee's pension scheme and their contribution are remitted regularly to the concerned RPFC. The photocopies of challan in this regards should be submitted regularly in G.S.E.C.L. office.

d) In case the contractor having more than one contract in the same TPS, then the contractor has to submit contract wise separate list of the workmen to the concerned Officer.

10. The contractor shall take all safety precautions during work as per Indian Electricity Act and Rules.

11. **LABOUR LAWS**

a) Person below the age of 18 years and above 60 years should not be employed for the work.

b) No female worker shall be employed in the night shift between 7.00 P.M. to 6.00 A.M.

c) The contractor shall maintain a valid labour license under the contract labour (Regulation and Abolition) Act for employing necessary man power to be required by contractor. In the absence of such license the contract shall be liable to be terminated without assigning any reasons thereof.

d) The contractor shall at his own expense comply with all labour laws and keep the G.S.E.C.L. Indemnified in respect thereof. Some of the major liabilities under various labour and industrial laws, which the contractor shall have to comply, which are as under:

I) Payment of contribution by way of employee's contribution towards provident fund, family pension scheme, deposit linked insurance scheme, administrative charge etc., at the rates made applicable from time to time by Govt. of Gujarat /Govt. of India and other statutory authorities.

II) Payment of deposit in respect of each contract labour at the rate applicable of with the offices of Commissioner of Labour as per the contract labour (Regulation and Abolition) Act.

III) License fee as prescribed under the contract labour (Regulation and Abolition) Act and rules framed there under depending upon the number of workmen employed by contractor.

IV) Identity cards as prescribed under the factories Act shall be issued to workmen.

VI) Payment of retrenchment compensation, Notice pay and other liabilities as per Industrial Disputes Act. Any payment to the contractor's employees arising out of any claim or disputes under the Industrial Dispute Act 1947 or any other labour laws

VI) Payment of compensation in case of accidental injury shall be made as per the WC Act.

VII) If the female workmen are more than 30 numbers engaged then provision of crèches, shall be complied accordingly.

VIII) Maternity leave as per the provision of the maternity benefit Act.

IX) All payment to contract labours should be disbursed through bank only.

X) Bonus payment shall be made to contract labour as per bonus act.

XI) Contractor has to arrange for in & out punching to all contract labours engaged by him in bio-metric punching machine kept at plant security gate and for which Rs. 10.00 shall be charged per labour per month as per administrative expenses.

XII) The contractor shall produce certified copies of following documents, in respect of workers deployed by him at GSECL, Ukai before Dy. G.M. (HR/IRO/LWO/In-charge of HR dept.

I) List of documents to be produced on starting of contract:

1. Copy of appointment letter of each worker deployed at GSECL,UKAI.
2. Copy of Labour License if require to deployed 10 or more than 10 contract labours.
3. Copy of insurance policy for each worker deployed at UTPS under the workmen compensation Act, 1923.
4. Copy of P.F. code allotment letter issued by P.F. Office.

II) List of documents to be produced on every month during the contract period:

1. Copy of wage register (Duly signed by representative of GSECL, Ukai).
2. Copy of over time register (Duly signed by representative of GSECL,UKAI)
3. Copy of Attendance register.
4. Original copy of provident fund deposition form dully signed and sealed for each month (In format provided by GSECL: Ukai).
5. Copy of P.F. challan.
6. ECR FORM (which reflects the amount of PF paid for each employee of contract labour engaged by contractor at GSECL,Ukai).
7. Copy of P.F. Returns (Form 5,10, 12A).
8. Copy of bank statement duly stamped by concern bank.

III) List of documents to be produced on every year during the contract period:

1. Copy of P.F. Returns (Form 6A, 3A).
2. Copy of Bonus Register (Patrak-C as per payment of Bonus Act).
3. Copy of Earned Leave Register (As per Factories' Act, 1948).
4. Copy of form no. 13 as per (As per Factory Act 1948).
5. Copy of form no. 24 (Half yearly return under the as per Factory Act 1948).
6. Copy of form no.25(yearly return under the as per Factory Act 1948).

In addition to above the contractor shall have to maintain all other legal documents require to be maintain in prescribed forma under the various labour law and keep original copies of above mentioned documents at his site office which shall be produced before Dy.G.M./IRO/LWO/In-charge of H.R. Dept as and when demanded.

The above are some of the major liabilities of the contractor in addition to other liabilities prescribed under the various labour laws in force from time to time from statutory Authorities like State Government / Government of India, which the contractor shall have to comply with.

12. **PROVIDENT FUND AND FAMILY PENSION SCHEME**

The contractor shall submit along with his bill (month wise) statement regarding deductions against employees' provident fund and family pension scheme in respect of each concerned employee. Provident fund and family pension scheme at the rate of 12 % of wages (or at the rates made applicable by the Government time to time). The contractor's contribution and his workers contribution towards provident fund and family pension scheme shall deposited by the contractor with Regional Provident Fund Commissioner, Ahmedabad. In case if the contractor deposits the contribution to the Assistant Provident Fund Commission, the zerox copy of challans and schedule must be submitted in the office. For maintaining the CPF Account of contractor's employees the contractor will have to pay administrative charges as applicable of the emoluments of the employer of the contractor's every month.

13. **GROUP INSURANCE SCHEME**

The contractor has to take Group Insurance for all workmen engaged by him and copy of the same shall be produced to Concerned Officer.

14. **PAID LEAVE FACILITY**

Paid leave facility at the rate of one day for every 20 days worked by the contract, labour shall be provided the contractor to his workers. It shall be duly verified and approved/certified by the authorized officer of the GSECL.

15. The contractor shall employ adequate number of experienced staff at site for daily supervision and for maintaining of various registers and records required under the law and contracts. No payment for such supervision shall be admissible.

16. **CONTRACTOR TO INDEMNIFY THE GSECL**

The contractor shall indemnify and keep indemnified the GSECL, and every member, officer and employees of the GSECL, also Engineer-in-charge and his staff against all actions, proceedings, claims, demands, costs and expenses whatsoever arising out of or in connection with the matter referred in above clauses and elsewhere and against all actions, claims demands, cost and expenses which may be made against the GSECL by any workman/ employees of contractor or any sub contract under any laws, rules or regulation having in force of law including but not limited to claims against the owner under workmen compensation Act, 1923. The Employee's Provident Fund Act.1952, and/or the contract labour (Abolition and Regulation) Act. 1970.

The GSECL shall not be liable for or in respect of or in consequence of any accident or injury to any workmen or other person in the employment of the contractor or his sub-contractor, and the contractor shall indemnify and keep indemnified the GSECL against all such damage and compensation and against all claims, demands proceedings costs, charges and expenses whatsoever in respect of or in relation thereto.

17. **WORKMEN'S COMPENSATION & EMPLOYER'S LIABILITY INSURANCE**

Insurance shall be affected for all the contractor's employees engaged in the execution of these contracts. If any of the work is sublet, the contractor shall required the sub-contractor to provide workmen's compensation and Employer's liability insurance for the latter's employees unless such employees are covered under the contractor's insurance. It shall be liability of contractor for employees of his sub-contractor.

18. The GSECL, reserves the right to terminate this Biennial rate contract at any time during its tenure without giving notice of termination of any reasons thereof.

19. The GSECL will be entitled to deduct directly from the bill to be paid to the contractor, any sum or sums payable by the contractor and which sum/sums the GSECL is required to pay as a principal employer on account contractor's default in respect of all liabilities referred to in above clauses.

20. Nothing in the contract document stated shall anywise continue any workman / employees of contractor or any sub-contractor as or to be workmen / employees of the owner or place obligation liability in respect of any such workman / employee upon the GSECL.

21. Office correspondence will be carried out in English/Gujarati. The English version will be the correct one and the same only will held good for legal matters.

22. The period of the contract shall be of (Two) 02 years from the date of commencement of the work.

23. The General rules and regulation of the GSECL for tender and contract for works will apply to the extend the same any not modified herein. The booklet for tender and contract for work is attached here with. The contractor is deemed to have gone through it and considered to be fully aware of the conditions mentioned therein.

24. Any other rules and regulation, conditions, etc., that are in force at present and that may be framed by the GSECL From time to time in connection with contracts will be binding and acceptable to contractor.

25. In case the contractor's work is found unsatisfactory or contractor abandons, stops, or creates during the contract period, the GSECL will be entitled to terminate the contract. In case of default the work will be got done through other agencies at the risk and cost of contractor and GSECL shall be entitled to recover such expenses from defaulting contractor by such methods as deemed fit. The contractor shall not however, be entitled to terminate the contract or stop works undertaken by him before expiry of the contract period due to any reason whatsoever.

26. Under the contract the contractor shall either himself be present on site or should nominate persons in writing, who must be available at site and who should be authorized to take decision about the works and mutual consultation from time to time. In the absence of any responsible man of contractor at the time of any emergency adhoc decision of Engineer-in-charge will be binding to the contractor.

27. For convenience of the contractor some open space will be provided in the working site for making office of contractor and to keep his tools and equipments a token rent Rs. 1/- per month as per GSECL rules & shall be charged from the contractor, which he will pay before the commencement of the month.

28. The contractor is bound to execute the work for any item as per the instruction / mutual consultation with EIC from time to time. On refusal to do same the work will be carried out at contractor risk and cost by using his (contractor's) tools, tackles for which no compensation whatsoever shall be payable to the contractor.

29. The successful tenderer / contractor will have to enter into agreement with the GSECL and the

cost of the stamp paper will be borne by the contractor. The contractor will also have to execute Indemnify bond on required value of stamp paper as per GSECL, rules. The cost of stamp for indemnity bond will be borne by the contactor.

30. The contractor will be responsible and liable to pay difference in wages if any and or observe the revised service conditions that may be awarded by the Hon. Industries Tribunal effective from the date directed in the award.

31. Rate quoted of tender are firm price basis, hence the labour escalation payment will not be paid by GSECL to the contractor.

32. In case of delay in execution of work the penalty as CL. No. 3 of "Tender and contract for work" will be applicable.

33. Any casualty will also have to be borne by the contractor for the period the contract continues.

34. The contractor must be solvent and should have sufficient trained labour force competent to carry out the Job.

35. The contractor must maintain regular labour record and should be paying all acquired, benefits to the labours which in force. Contractor should obtain certificate for this from Govt. / Public organization for the works being executed by him.

36. The contractor must possess separate P.F. code for the above subject work.

37. Attendance rolls shall be maintained up to date. All the written registers, Performa etc…shall be filled up and maintained up to date and kept ready for inspection at any time or submitted in-time to the concerned authorities as per contract labour etc. Factory Act. etc.. By contractor

38. (a) The contractor shall strictly observe all safety rules and provide safety equipment to the contract labours as per the factories Act, 1948, and whatever amendments made from time to time to avoid any chance of accident. The contractor shall strictly observe all instructions of safety officer and factory inspector to avoid any chance of accident.

(b) As per the nature of work in the contract, Helmets, safety goggles, apron, hand gloves, safety shoes, safety belts, leather/asbestos apron should be made available during the execution of work.

(c) All the lifting and material handling equipment used during working under this contract are must be inspected and certified by the competent person authorized for the same and certificate there of must be made available to the person intended to required for verification.

39. It is the responsibility of the contractor to ensure that contractor's employees maintain strict discipline as regards security, methods of safe working etc, and not to cause any hindrance to smooth running of power station or in execution of duties by GSECL staff. Any lapse in this regard will be viewed seriously and contract is liable to be terminated. If any of contractor's staff is found unsuitable or not behaving properly, the contractor shall have to remove him from the work-site on demand by GSECL. The contractor shall have to strictly observe the rules and conditions specified in the enclosed works contract booklet of the GSECL, which are not modified hereunder. To keep harmonious industrial relations amongst contract labours is the sole responsibility of the contractor. Any breach of the same will be viewed seriously.

40. The contractor, shall at their own expense make all necessary provision for housing water supply and sanitary arrangement for their contract employee as well as for works and shall pay direct to the authorities concerned all rates, and taxes.

41. The contractor shall make their own arrangements for the necessary approach road, for transport of their materials and be responsible for the Compensation on account of damage to crop on G.S.E.C.L. property.

42. All the royalty charges octroi other duties will be paid by the contractor and no extra could be claimed on this account.

43. It will be absolutely incumbent on the contractors to have on the site of work only such of the materials as have been duly passed by the Engineer-in-charge Materials that have rejected must on no account be allowed to remain on the side and inspire-of written order to do so any such rejected material is on the site beyond a period of 48 hours notice the Engineer-in-charge shall have the right to remove it at the risk and cost of the contractor and even destroy it.

44. It must be distinctly understood that the conditions of contract and of claims in respect of extra work will not be allowed, unless the works to which they relate is clearly without the spirit and meaning of the specifications or unless such work are ordered In writing by the Engineer-in-charge and claimed for in specified manner.

45. On completion of the work, the site shall be cleared by the contractor within the stipulated period, and ground brought to original stage and they shall not be entitled for any extra claim on this account.

46. Damage causes to works:

The work whether fully constructed or not, and all materials, machinery plant tools, temporary building and other things connected there shall be at the risk and in the sole charge of the contractor until the works have been delivered, completed to the Engineer-in-charge and certificate form him to that effect obtained Until such delivery the contractor shall at their own cost take all the precautions reasonably necessary to keep all the aforesaid works materials machinery, plant, tools. Temporary building and other things connected with the work, free from any loss or damage and in the event to the same or any part thereof being lost or damage and in the event to the same or any part thereof being lost or damage shall from with within possible speed, reinstate and make good such loss or damage at contractor's own cost.

47. There will be generally no objection on the component parts of the works being given over to responsible sub contractors but it must be borne in mind that this department would under no circumstances recognize these sub contractors and responsibility of executing the work in accordance with the condition of contract will entirely rest on the main contractors. The main contractors will therefore always have the very responsible member preferably a technical hand, present on the works with power to sign all work order issued on the site of work and to take requisite actions in the interest of very efficient execution of works.

48. The work shall be carried out as per the standards and norms fixed by the G.S.E.C.L. i.e. the Engineer in Charge or his authorized agent wherever it concern to the G.S.E.C.L. interest the decision of C.E (Gen.) shall remain, binding .

49. The work shall be carried out / executed according to the technical specification and contractor shall make such changes as deemed fit from technical viewpoint by concerned E.I.C. during execution.

50. The contractor will have to communicate the name of his authorized agent who shall be presentation the works and shall be authorized to sign the materials requisitions receive Instruction given verbally, or on the order book on behalf of the contractor.

51. The contractor will have to sign the conditions of contract and execute the agreement; pay up the security deposits, failing to that the earnest money deposit will be for feted. The value of the stamp paper and stamp duty charges shall be borne by the contractor.

52. The contractor must arrange for all transport of materials weighting of material issued at department stores and all such cost include in the rates of schedule 'B' with the less or above percentage quoted by the contractor for finished work.

53. The competent authorities can delete to any items in the schedule 'B' of the tender order if they feel that the items is not essential to be executed.

54. Schedule of quantities is included in the tender document it shall definitely under stood that the

G.S.E.C.L. does not accept any responsibility for the correctness or completion of this schedules and this schedule is liable to alterations by commissions, deductions or additions at the description of the Chief Engineer of as set forth in conditions of contract specific percentage less or above shall be quoted by the contractor below the total amount of schedule 'B'.

This tender notice shall form a part of contract.

55. The entire work is to be completed within the stipulated time limit from the date of commencement of work. You will not be eligible for any extra for the idle period of work or waiting period that may be required to suit other considerations and no claim for compensation on account of such will be considered. However in case of delay due to circumstances beyond the control of contractor either in date of commencement or due to waiting during construction extension time may be considered for completion of work.

56. In case contractor is unable to account for full quantity of materials issued to him from the department stores, recovery will be effected from contractor's at cost rates or market rates prevailing at the time of issue whichever is higher, plus 15% to cover G.S.E.C.L. departmental supervision charges for all material unaccounted for.

57. The work shall be carried out by contractor as per the technical requirement to be worked and in consultation with E.I.C. Contractor's responsible and qualified representative, who can manage the site, shall remain present at Ukai T.P.S round the clock for such consultation.

58. **Supply of Electricity:**

Electric supply if required the GSECL provide on free of cost for work at site only and provide electricity for shed/office on chargeable basis through energy meter measurement as per GSECL rules. Payment of bills for the same shall be made by contractor regularly within stipulated time as per G.S.E.C.L. rules.

59. GSECL will provide the space at anywhere as per availability in the plant for constructing office for which contractor will be charged at the rate of Rs.10/- per Sq. Foot per month.

60. Should this tender be accepted I / We have agreed to abide by and full fill all the terms and provision of "Tender and Contract of Works" as applicable and in de-fault there to fore-fit and pay to the G.S.E.C.L the sum of money due.

61. The Work will have to be carried out in-co-ordination with other Agencies on the same site on account of this in case the contractor has to stop or delay his works for same time, contractor will not claim anything extra only G.S.E.C.L. may consider to give suitable extension in time limit if necessary on such account.

62. Any dispute arising out of the contract, if not settled mutually, than only the honorable court shall have jurisdiction to settle & decided the dispute.

63. The GSECL reserves the rights to forfeit the SD in case of any breach of contract & in case of disputes. The decision of Chief Engineer Ukai TPS shall be final binding and acceptable to contractor. If contractor fail to start the work as stipulated, the EMD & the SD shall be forfeited.

64. The monthly payment to the labours must be paid before 10^{th} day of succeeding month in the presence of Labour Welfare Officer, Ukai TPS. The copy of the same must be submitted along with monthly R.A bill duly certified by the Labour Welfare Officer. The certificate should contain detail of average no. of labours deployed, total wages, salaries paid and overtime amount separately.

65. The quarter facility if available will be provided as per the prevailing conditions and norms of the GSECL.

66. **Submission of the bill by the contractor**

Bills shall be submitted by the contractor for each month on or before the date fixed by the Engineer in charge for the all the works, executed in the previous month and the Engineer in charge shall take or cause to be taken in the requisite measurement for the purpose or having the same verified and the claim so far as it is admissible, shall be adjusted, if possible, within ten days from the presentation of the bills. If you does not submit the bill within the time fixed as aforesaid, the engineer in charge may depute a subordinate to measure up the said work in the presence of contractor or his duly authorized agent, whose countersignature in the measurement list shall be sufficient warrant and the engineer in charge may prepare a bill from such list which shall be binding to the contractor in all respect.

Along with the R.A bills the contractor should submit material account wherever applicable, proof of payment of provident fund and other statutory dues, certificate issued by IRO/LWO certifying average nos. of labours deployed during the month and total amount of wages and salaries paid to labours. The R.A bills along with the supporting documents will be paid within 30 days if possible.

67. **Income Tax:**

Income tax will be deducted at the source from each bill as per statutory requirements.

68. The GSECL will be entitled to deduct directly from the bills to be paid to the contractor any sum or sums payable by the contractor and which sum/sums the GSECL is required to pay as a principal employer on account of contractor's default in respect of all liabilities referred to in above clauses.

69. (a) No sales tax, Professional tax or any other taxes, cess or levy, Excise duty, Octroi, royalty or other duties will be payable by the GSECL against this contract.

(b) The rates of Schedule – B are exclusive of Service Tax. Service tax at prevailing rates, if applicable will be paid by GSECL extra on production of paid evidence / challan if claimed in bill/invoice.

70. The quantities mentioned in the Schedule – B are approximate only and may vary widely. The contractor shall be paid for the actual works carried out at the rates quoted by him.

71. The TDS at applicable rate as per section 57A and 57B of GST act shall be deducted from Contractors' bills as per government rules.

72. **Arbitration:**

If at any time any question, dispute, difference, shall arise between the GSECL or the engineer in charge and contractor or any person claiming through him upon or in relation to or in connection with the matter herein before stipulated and specified to be referred to arbitration, either party may forthwith give to the other a month's notice in writing of the existence of such question, dispute or differences whatsoever, which may at any time arise between the parties to this agreement, touching the agreement or subject matter thereof, arising out or in relation thereto and whether as to construction or otherwise shall be referred to the decision of the sole Arbitrator appointed by the chairman of G.S.E.C.L for the purpose, who shall be a retired High Court Judge or a retired District and Session Judge, and upon the parties reference to the arbitration act, 1940, as amended from time to time and the rules therein. The Arbitration proceeding shall be conducted at G.S.E.C.L, Head office, Baroda, or at such place as the sole arbitrator may determine. The award of the sole arbitrator (or umpire) shall be final and binding upon the parties upon every or any such reference the costs of and incidental to the reference and award respectively, shall be at the discretion of the arbitrator or umpire who may determine

the amount thereof or direct to the same to be taxed as between party, and the party shall direct by whom and in what manner the same shall be borne and paid, provided, however, that either party to be dispute shall in respect of any monetary claim, be entitled to receive from the other party by way of cost any time exceeding the percentage set out below, irrespective of the actual fees and expenses incurred by him. Work under contract shall continue during the arbitration proceeding and no payment, other than for matters in dispute due or payable by the purchaser, shall be withheld on account of such proceedings. The percentage above referred to in this clause is five percent on any such monetary award, which does not exceed Rs. 10000/-, three percent on the next or any party thereof, two percent on the next Rs. 50000/-, or any part thereof, and one percent on Rs. 40000/- or in case it exceeds Rs. 100000/-.

73. **Time limit:**

The time limit for completion of this contract works, if awarded is two years from commencement of work. The G.S.E.C.L can extend contract for further period of six months after expiry of time limit, if desired by the G.S.E.C.L, at the same rate, terms & conditions of awarded order of this tender without consent of party, and quantity will be enhanced proportionately if required.

74. The contractor shall quote only certain percentage of rates above or below the estimated rates; i.e. contractor should quote either, say A% above the estimate or B% below the estimate for all the items i.e. on total value of schedule-B.

75. The rates quoted shall be firm.

76. Conditional tender is liable to be rejected. Withdrawal or insertion of conditions unilaterally after opening of tenders will not be permitted unless it so desired by the GSECL.

77. The C.E. (G) Ukai has reserves the rights to reject any or all tenders without assigning any reasons thereof.

78. Before starting the work, the contractor should contact Industrial Relation Officer/ Labour Welfare Officer for all formalities and obtaining the gate passes of all contract labourers and for other formalities.

79. The contractor shall deposit 15 days salary at the rate of last drawn salary for every completed one year of services for each worker for the liabilities of the gratuity.

80. Party is abide to our corporation standard INTEGRITY PACT which available with technical section and you may read if desire during office hrs.

81. EXPERIENCED & TRAINED STAFF:

a) The contractor shall have to engage qualified trained and experienced persons employed having sufficient knowledge of such or similar type of jobs carried out.

b) Records/Registers to be maintained: -
Contractor shall have to maintain all up-to date records/registers as required and produce the same as and when demanded by GSECL or appropriate authorities.

82. (A) The successful contractor has to engage the existing protected 07 nos. of labours as per case Ref (IT) 71/1999 pending at Industrial Tribunal, Surat.

(B) Considering the recent trend of the Court/Tribunals and High Court in respect of contractor labourers, contractor has to engage the labourers who have been doing this work, during the tenure of the last contract. The GSECL on demand will give the list of such Labourers to the contractor.

(C) As per stay order of the court law, as may be in forced from time to time, the decision whatever may be of honorable court in accordance with GSECL shall be abide to contractor.

83. The responsibility and liability of labours engaged other than IT protected labourers for this work will be totally of contractor who has been awarded the contract and he will take back all these labours to his own establishment on completion of the contract. The GSECL will not be held any responsible and liable in any way in the matter.

Signature of contractor
With Rubber Stamp

Chief Engineer (Gen.)
GSECL: TPS: UKAI.

GENERAL SAFETY RULES / NORMS" TO BE OBSERVED BY THE CONTRACTOR

All the contractors working in **Gujarat State Electricity Corporation Limited Factory like Coal/Lignite/Gas/Hydro/Pumping Station** shall have to strictly observe the following Safety Rules. Concern principle contractors are responsible for informing & observance of these rules by their supervisors/contract workers as well as the owner/supervisors/ workers of 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 / workers 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 company for any loss or damage / accident / injury to the company's property / employee or employee of their own in default of non - observing these rules.

(01) Contractor should issue photo gate pass for their workers from GSECL Factory Manager as per Gujarat Factories rules, 1963 & details shall be filled up in GSECL gate pass format as per Aadhar card /Election card id proof & to follow the gate pass issue procedure through concern department EE & SE, Security Officer, LWO/IRO/DGM, Factory Medical Officer, Safety Officer/Dy. Safety Officer & Factory Manager.

(02) In case of emergency, temporary photo gate pass shall be issued by Security Officer only for three days with prior permission of Factory Manager only. More than three days, Permanent photo gate pass procedure shall be completed by contract agency for their contract workers.

(03) Certificate of Fitness of employment in hazardous process & operations in form no.33 of Gujarat Factories rules, 1963 shall be issued by GSECL Factory Medical Officer for all contractor workers before commencement of work & examination responsibility shall be taken by contractor as well as concerned Head of Department .Pre-employment & Periodical medical examination of contractor workers shall be carried out in form no.32 from GSECL Factory Medical Officer after every six (06) months of contractor with their contractor workers. Contractor shall be fulfilled all health requirements before commencement of work. After completion of medical examination in form no.32/33, GSECL Factory Medical Officer shall be signed in contract worker gate pass procedure format.

(04) Contract worker gate pass will issue after completion of safety induction 3D animation movie & Training record is to be maintained in IMS/OHSAS training format by TK Office/LWO.

(05) As per Gate pass format of GSECL, Safety Officer/Dy. Safety Officer shall be checked the issue PPE to contract workers as per nature of job, Form no.10 of lifting tools and tackles, Driving license, Electrical contractor license, Electrical trade qualifications, Safety induction training, SOP, supervisor qualifications etc. After fulfillment of all Safety compliances, Safety Officer/Dy. Safety Officer shall be signed in Contract worker Gate pass procedure format.

(06) Work Contract shall be completed by principle contractor/agency/person who is awarded the work order. Subletting of contract shall be allowed only if prior approval of Power station chief before execution of work. Contractor/agency shall be submitted the entire subletting contract documents with gate pass application through concern department EE & SE, LWO/DGM, Safety Officer/Dy.Safety Officer & Factory Manager.

(07) Under The Conditions Framed Under Rule-45 Of The Indian Electricity Rules, 1956, Valid Electrical contractor License shall be submitted to concern electrical department EE/SE/Electrical Safety Officer/ Safety Officer/Factory Manager at the time of apply gate pass by agency/party with latest renewal from Chief Electrical Inspector, Gandhinagar- Gujarat. Electrical License photocopy shall be checked by Concerned HOD of Electrical Department/Electrical Safety Officer/Dy.Safety Officer/ Safety Officer/Factory Manager.

(08) As per nature of job/work, Qualified supervisor (Diploma (Electrical/ Mechanical/Civil/C&I) + 3 years experiences or ITI + 10 years) shall be engaged by contract agency & qualification certificate with experience certificate shall be submitted to concern EE/SE/LWO/IRO/DGM/ Dy.Safety Officer /Safety Officer/Factory Manager at the time of apply gate pass.

(09) As per rule 3 of CEA regulation ,2010: **Designating person(s) to operate and carry out the work on electrical lines and Apparatus,** Contract person/worker possesses a certificate of competency or electrical work permit, issued by the Appropriate Government. That means, Electrical trade Qualification of contract worker/person like ITI-wireman/ Electrician, Diploma (Elect), BE/B. TECH (Elect), ME/ M. TECH (Elect) shall be submitted to concern EE/SE/LWO/IRO/DGM, Dy.Safety Officer/ Safety Officer/Factory Manager at the time of apply for photo gate pass procedure.

(10) As per nature of job/work & during capital overhauling work /Annual overhauling work /24X7 round the clock work/major shut down work, Qualified Safety Officer/Manager/Supervisor (BE/Diploma (Elect/Mech/Civil) + PDIS-Post Diploma in Industrial Safety) shall be engaged by contractor during dangerous operations/dangerous works as well as day to day dangerous activities, safety supervision, tool box talk, Safety awareness programme, SOP preparation with hazards & its control measures with each step , checking of lifting tools & tackles, hydra mobile crane, Safety precautions, coordination with Safety Department etc.

(11) License of driver shall be submitted with gate pass issue application as per nature of vehicles & to follow the Motor vehicle Act,1988,the Central Motor Vehicles (Amendment) Rules,2016 as well as Gujarat Motor Vehicles rules,1989 & driver license shall be checked every day by security shift in charge before entry in the Factory premises.

(12) SOP with JSA (Job Safety Analysis) shall be prepared by contractor through competent person as per GFR, 1963 or Qualified Safety Officer as per GFR, 1963 with 05 years experiences. SOP will review & approve by concern JE/DE/EE/SE/Elect. Safety Officer/Dy. Safety Officer /Safety Officer/Factory Manager before execution of work.

(13) 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/DGMS/CE/EN/ANSI approved) & to checked standard/make in PPE issue format by concern JE/DE/EE/SE/Safety Officer/Factory Manager. 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 workers to put on the same while at works.

The ongoing work is liable to be stopped at any time if your contract workers/staffs found working without P.P.Es. Following is the list of various P.P.Es (as per ISI/DGMS/CE/ EN/ ANSI approved only) to be used for various works / worksites.

In any work, Contractor shall be issued the minimum 05 nos. of PPEs like Safety Shoes, Safety Helmet, Safety goggles, Mask & Reusable Ear plug to their workers/supervisor compulsory & it will check by concern section HOD & Dy.Safety Officer /Safety Officer at the time of gate pass procedure.

List of safety equipments

Industrial Safety Helmet	For protection of head against falling objects or during fall of person from height. **Yellow Colour helmet is used for contract worker with agency logo.**
Safety Goggles/welding goggles/ chemical splash goggles	For protection of eyes against flying particles / dust, chemical splash, welding spark, arc, flashover etc.
Full Face shield	For protection of face against flying particles / dust, chemical splash, spark, arc, flashover etc.
Reusable Earplug / Ear muffs.	For ear / hearing system protection while working in high noise level area.
Chemical suit/Gas tight suit /Fire proximity suit/FR Boiler Suit	For body protection against chemicals, oils, sharp edged objects, heat, hot objects etc.
Safety Hand Gloves	For protection of hands against chemicals, oils, sharp edged objects, heat, hot metals/objects, electricity etc.

Safety shoes/ Gum Boots with Oil/Chemical/water/heat/ Electrical resistance etc.	For protection of leg/feet against falling objects, sharp edged objects, heat, hot metals/objects, electricity etc..
Safety Belt(full body hardness with double lanyard & shock absorber) / Rope / Life line / Fall arrestor etc.	For fall prevention while working at heights or in depth, working in vessel or in confined space.
Dust Mask/Respirator with valve(FFP2)	Protection of respiratory system against dust.
Chemical Cartridge Respirator with full face mask type A2B2E2K2	Protection against toxic chemical fumes / gases/vapors/dust etc.
Trolley mounted Air line respirators with full face mask	Working in oxygen deficient zone or confine space area
Portable Single gas detector like Chlorine, Ammonia, Hydrogen, etc	Working in hazardous storage/process area
Portable Multi gas Detector (LEL,O2,CO,H2S,SO2, etc)	Working in oxygen deficient zone & use in entry of confine space & Major fire
Automatic voltage detector	To check the present voltage or induction voltage of electrical equipments/ bus/switch gears from 01 (one) feet distance before starting the any electrical work .
Auto darkening welding helmet (EN 379 & EN 175 Level-B) with PAPR as per EN 12941:1998, class TH2 and AS/NZS 1716	The new auto darkening welding helmet combines legendary Speed glass quality and auto darkening technology with an innovative wide-view grinding visor to give welders an all-in-one solution for more flexibility, precision, and efficiency. Respiratory System is a combined face and breathing protection device, for increased comfort and safety in welding. The unit is equipped with a particle filter which removes particles from the air. The unit provides a constant airflow independent of filter combinations and clogging. The unit can also be equipped with a gas filter (for example A1B1E1). The unit supplies air to the head top via the connecting breathing tube. The airflow creates a slight positive pressure which together with the sealing to the face prevents particles and other contaminants from entering the head top.

(14) All PPEs (as per ISI/DGMS/CE/EN/ANSI approved only) Should issued by party/agency/contractor to their contractor workers as per nature of job and allotment of PPE list shall be submitted to Safety Officer, UTPS on his letter head as per below mentioned format by Contractor before commencement of work through concerned JE,DE,EE/SE .

Sub: Issue of PEE to Contractor workers

Sub of work Order:

Work order no.

Name of Agency:

Date of Commencement:

Time limit for work order:

Sr.	Name of	Desi	Name	Name of	IS	Make	Qt	Unit	Date	Recei

no.	workers	gnation	of Section under work execution	PPE	:Code no. of PPE	of PPE	y		of issue	ving signature
A	B	C	D	E	F	G	H	I	J	K
01				Safety Helmet				Nos.		
				Safety goggles				Nos.		
				Reusable Ear Plug				Pair		
				Dust Mask				Nos.		
				Safety Shoes				Pair		

(15) Shift Security Inspector/Security Officer shall be checked Safety Shoes & Safety Helmet of all contractor workers at entry gate of Factory Premises & shall entered contractor workers with Safety Shoes & Safety Helmet with photo ID Gate Pass.

(16) Shift Security Inspector/Security Officer shall be checked validity of Gate pass of all contractor workers on daily basis.

(17) During the work execution, one trained & competent supervisor of agency should always remain present at work site. Concern JE/DE of GSECL shall be supervised the contract work as per SOP.

(18) Approved NABL laboratory calibration certificates of electrical/mechanical/Civil/C&I/Environment survey/Chemical etc measuring /testing equipments/instruments which are used during contract work shall be submitted before starting the work & shall be checked by concern JE/DE/EE before starting work & it's record shall be maintained in concern section.

(19) 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 concern Department / Section JE/DE and shall be informed to concern section JE/DE for closed/ returned after completion of work.

(20) Safety talk/Safety work instructions shall be given to contractor workers by concern JE/DE regarding hazards of specific work, risk & it's control measure (mentioned in HIRA) before starting the job work and records shall be maintained for each & every job works.

(21) Display Safety instructions shall be strictly followed by all workers who are working in factory premises.

(22) Material Safety Data Sheet (MSDS) of each chemical shall be available with Chief Chemist/Control room & work related Chemical information shall be taken by contractor & contractor workers from Concern EE/Chief Chemist before starting of chemical handling work.

(23) The contractor shall be checked & securely covered or securely fenced any opened fixed vessel, sump, tank, pit or opening in ground or in floor which, by reason of its depth, situation, construction or contents ,is or may be a source of danger before starting the work each & every days or after interval/recess. Contractor supervisor shall be informed to concerned HOD regarding any unsafe conditions.

(24) Prohibition of smoking, fires, lights, spontaneous ignition substance, matches; fuses, mobile phone etc are to be strictly followed by all workers who are working in factory premises.

(25) 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 concerned 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.

(26) 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 in case 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 accident to fellow workers.

(27) The contractor shall see that he / his persons 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.

(28) The contractor shall see that he / his persons 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.

(29) 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.

(30) Non-Sparking Non-Magnetic electrical hand tools and tool kits shall be used by Electrical contractor for safe use in areas where hazardous, flammable, or combustible vapors, liquids, dusts, or residues may be present in Gas Based power plant and list of tools and tackles shall be submitted with technical bid. Non-Sparking Non-Magnetic electrical hand tools and tool kits shall be checked by JE/DE before commencement of Electrical work.

(31) 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.10 by Competent Person as per the Factory act-1948 & Gujarat Factories Rules and its validity do not expire. Further, it shall be fixed properly and firmly prior to lifting the weight. **Valid Test certificate of all Lifting machines used by Contractor to be submitted to** Dy.Safety Officer/ **Safety Officer before commencement of work through concerned EE/SE.**

(32) Metal 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 /full body hardness with double lanyard & Fall arrestor & Helmet is compulsory. It is also necessary to fasten chinstraps of the helmet.

(33) Contractor or their employee shall not interfere in day-to-day 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.

(34) The cylinders containing poisonous / toxic or inflammable / explosive gas like Oxygen, Acetylene, LPG, Hydrogen, Ammonia, Chlorine, CO_2 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.

(35) In Gas Based Power station/Hydrogen storage area /Hydro carbon fumes-vapour generated area, Spark arrestor (as per approved manufacturer of CCOE, Nagpur) shall be provided on each vehicle by party/agency and it will check by shift security in charge before entry of vehicles in the factory premises.

(36) No women or young person shall be employed or permitted to work in Lead-compound area like battery room etc. as per schedule VI of GFR 1963.

(37) No women or young person shall be allowed to clean, lubricate or adjust any part of a prime mover or of any transmission machinery while the prime mover or transmission machinery is in motion. Examination or operation of motion machinery shall be made or carried out only by a specially trained adult male worker wearing tight fitting clothing as per section 22 of factories act 1948.

(38) In all risky job, before start the work, contractor should obtain General Safety Work Permit through concerned section from Shift –in-charge well in advance.

(39) 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 Station Mobile No as well as Station Fire Officer or Emergency Control room no which is displayed at prominent place of factory like Main Security Gate, All unit control room, Canteen area, Safe Assembly points, Fire Station, All security gates, Occupational Health Centre.

(40) 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 & ANNEXURE** may be obtained from concerned section or Dy.Safety Officer/Safety Officer.

In case of any electrical accident, it shall immediately be reported to Electrical Safety Officer through concern Sectional Head / Engineer. The prescribed **Electrical accident form no. A as per electricity act-2003 & Form No. 21 & ANNEXURE as per Gujarat Factories** rules shall be filled up by concern department JE/DE with written consent of contractor. The Form may be obtained from concerned Electrical section or Electrical Safety Officer. Electrical accident investigation shall be carried out by Electrical Safety Officer with Factory Manager.

After any reportable accident, Contract agency shall be submitted the fitness certificate of injured person with endorsement of GSECL factory Medical Officer to LWO/Dy.Safety Officer/Safety Officer/Electrical Safety Officer then after injured person may allow for work.

(41) For any incident occurred but have no injury to any persons should also reported as per GSECL format and informed to Dy.Safety Officer/Safety Officer **as Near Miss Incident.**

(42) **Safety penalty shall be imposed against Offences by contract workers:** If any contract worker worked in a factory contravenes any provision of Factories act or any rules or orders made

there under ,imposing any duty or liability on workers, contractor/agency shall be punishable with fine which mentioned as under.

Sr. No.	Description of penalty	Amount
(i)	Work without PPEs	Rs.300/- per person
(ii)	Work without work Safety permit like working at height, confine space entry, hot work etc.	Rs.1000/- per day
(iii)	License of driver as per type of vehicles not registered.	Rs.750/- per person
(iv)	Welding work without flashback arrestor/double gauge regulator set	Rs.1000/- per set
(v)	Operate Portable power tool without ELCB	Rs.1000/-per equipment
(vi)	Work without qualified Supervisor as per nature of job like mechanical, electrical, civil, C&I, chemical etc.	Rs.1000/-per day
(vii)	Work without SOP & JSA	Rs.2000/-per day
(viii)	Work without test report of 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) in Form No.10 of Gujarat Factories Rules,1963	Rs.2000/- per equipment
(ix)	Work without Double lynyer Safety belt during working at Height work, work without anchoring in hook/line line	Rs.3000/-per person
(x)	Work without 24 Volt supply in Confine space area	Rs.3000/-per person

Safety Penalty is to be imposed directly by individual Dy. Safety Officer/Safety Officer/Electrical Safety Officer and Factory Manager/Occupier against violation of statutory requirements and penalty will be recovered through RA bill. Photograph/CCTV camera footage is to be put up with penalty note by imposed individual officer.

(43) Party will damage any fire equipments or property or machinery in factory during execution of work, total damage cost will be recovered from party RA bill and recovery Office note put up by concern HOD.

(44) All the relevant labour and industrial laws shall also be followed compulsorily.

(45) After completion of work, cotton waste, grease, oil, unused material, welding rod pieces, scrap etc. are to be removed by contractor and scrap shall be deposited to scrap yard of Main Store.

(46) For performance evaluation of contractor, safety factors of work accident, fire incident & near miss accident will be considered. Steps can be taken to review the job assignment up to cancellation for negligence.

(47) 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), The Electricity Act-2003 & rules, BOCW Act/Rules shall be followed strictly. The contractor shall also obey the rules / regulations / instructions of the local Competent Authority for safety & health requirements.

(48) The above rules shall be scrupulously followed and where required, Contractor /contractor workers may contact to the Dy.Safety Officer/Safety Officer/Electrical Safety Officer in case of any ambiguity or needs further guidance in this regard.

Signature of contractor
With Rubber Stamp

Chief Engineer (Gen.)
GSECL: TPS: UKAI.

SECTION-E

TENDER AND CONTRACT FOR WORKS

GUJARAT STATE ELECTRICITY CORPORATION LTD.

TENDER AND CONTRACT FOR WORKS

GUJARAT STATE ELECTRICITY CORPORATION LTD.
UKAI THERMAL POWER STATION

TALUKA – SONGADH

DIST. SURAT - 394680.

(APPLICABLE FOR WORKS CONTRACT)

GENERAL RULES AND DIRECTIONS FOR THE GUIDENCE OF CONTRACTOR

Notwithstanding anything contained to the contrary in the specification or tenders in subsequent exchange of correspondence, the conditions of contract shall be binding on the contractor and any change or variations expressed or implied, however made in the said conditions shall not be valid or operative unless expressly sanctioned by the GSECL. The contractor shall be deemed to have fully informed himself and to have special knowledge of the provisions of the conditions of contract herein contained.

1. All works proposed to be executed by the contract shall be noticed in one of the English and one of the vernacular local daily newspapers, stating the work to be carried of as well as the date of submitting and opening tenders and time allotted in carrying out the work. also the amount of earnest money to be deposited with the tender and the security deposit to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills.

2. Copies of specifications, design, drawings, estimated rates, scheduled rates and any other documents required in connection with the work which will be signed by the Engineer-in-Charge for the purpose of identifications shall be open for inspections by the contractors at the office of the Executive Engineer during office hours.

3. Whether the works are proposed to be executed according to the specifications recommended by the contractor and approved by a competent authority on behalf of the Gujarat State Electricity Corporation Ltd., such specifications with designs and drawings shall form part of the accepted tender.

4. The tenderers and receipts for payments made on account of any work, when executed by a firm should be signed by all the partners except where the contractors are described in their tender as a firm, in which case the receipt shall be signed in the name of firm including the partners or some other person having authority to do so.

5. The tenderer at shall fill up the usual form stating at what percentage above or below rates specified, he is willing to under take the work. Only one rate or such percentage on all the estimated rates or schedule rates shall be mentioned.

6. Tenderer which propose any alternation in the work specified in the form in invitation to tender or in the time allowed for carrying out the works or which contain any other conditions of any sort, will be liable to rejection.

7. No single tender shall include more than one work, but contractors who wish to tender, for two or more works, shall submit a separate tender for each work. Tender shall have the name and the number of the works, of which they pertain, be super scribed on the envelope.

8. The Engineer-in-charge or his duly authorized assistant will open tenders in the presence of any intending contractors who may be present at the time and will enter the amount of the several tenders in a comparative statement in a suitable form. In the event of a tender being accepted, the contractor shall there upon, for the purpose of identification, sign copies of the specifications

and other documents. In the event of tender being rejected, the officer (Engineer-in-charge) shall authorize the paying officer concerned to refund the amount of the earnest money deposited to the contractor making the tender on his giving a receipt for the return of the money.

9. The officer, competent to dispose off the tenders, shall have the right of rejecting all or any of the tenders, without assigning any reasons thereof.

10. No receipt for any payment alleged to have been made by contractor in regard to any matter relating to tender of the contract shall be valid of binding on the GSECL unless it is signed by the Engineer-in-charge

11. The memorandum of work to be tendered for and the schedule of materials to be supplied by the Gujarat State Electricity Corporation Ltd. and their rates shall be filled in and completed by the office of the Engineer-in-charge before the tender form is issued if a form issued, to an intending tenderer has not been so filled in and uncompleted he shall request the said office to have this done, before the completes and delivery his tender.

12. All works shall be measured, meet by standard measure and according to rules are custom and usual in the use in the Gujarat State Electricity Corporation Ltd., and no proposal to adopt alternative method will be accepted, the Engineer-in-charge decision as to what is “the usual method in use in the Gujarat State Electricity Corporation Ltd.” shall be final.

13. Every contractor shall, except the registered contractor on the approved list of the GSECL, produced, along with the tender a solvency certificate from the collector of the District within which he resides, of a banker’s certificate of his financial stability, if he fails to produce such a certificate his tender will not be considered.

14. All corrections and addition or pasted slips should be initialed.

15. Tenderer shall be deemed to have full knowledge of relevant documents, site conditions etc. whether inspected or not by him.

16. Submissions of tender by a contractor implies that he has read the instructions and condition of contract herein contained and has made himself aware of the scopes and specifications of the work to be done and conditions and rates at which stores materials etc. will be issued to him and local conditions and other factors bearing on the execution of the work.

17. Under no circumstances shall any contractor be entitled to claim enhanced rates for any item of contract without prior sanction of the competent authority.

18. These rules and directions shall form part of the contract.

TENDER AND CONTRACT FOR WORKS

I/We hereby tender for the Gujarat State Electricity Corporation Ltd. (herein referred as "GSECL") of the work specified in the under written memorandum within the time specified Schedule B (Memorandum showing items of work to be carried out) and in accordance, in all respect, with the specifications, design, drawings and instructions in writing and as per annexed conditions of contract and agree that when the materials for works are provided by the GSECL such materials and rates to be paid for them shall be as provided in Schedule A hereto.

MEMORANDUM

a) General Description of Work :

b) Estimated Cost :

c) Earnest Money :

d) Security cum PBG Deposit : 10% of the contract amount

e) Time allowed for the completion of work from date of written order to commence.

Should this tender be accepted I / We hereby agree to abide by and fulfill all the terms and provisions of the conditions of contract annexed hereto as applicable and in default thereof forfeit and pay to the GSECL the sums of money mentioned in the said conditions.
Receipt No._____ Date _____ from the Gujarat State Electricity Corporation Ltd in respect of the sum of Rs _____ (Rupees _____) (the amount to be specified in figures and words) is herewith forwarded representing the earnest money the full value of which is to be absolutely forfeited to the GSECL should I/We not deposit the full amount of security deposit specified in above memorandum in accordance with clause-(d). Security Deposit of the said conditions / otherwise the said sum of Rs_____ shall be refunded on surrendering the original receipt, in case of non-awardance of contact.

Signature of the contractor

Address of the contractor

Dated _____ day of _____year

Signature of Witness

Address of Witness

Occupation

Dated _____ day of _____ year

The above tender is hereby accepted by me on behalf of the Gujarat State Electricity Corporation Ltd.

Chief Engineer (Gen).

Superintending Engineer (Electical)

Executive Engineer (Electrical Testing)
Or his authorized assistant

CONDITIONS OF CONTRACTS

1. **Definitions :**

(a) The Contract means the documents forming the tender and acceptance thereof, together with the documents referred to therein or individual work order in the case of term contract, including these conditions, schedules and / or additional conditions attached to the form of tender or individual work, order, rate schedule, the specifications and the drawings and all these documents as applicable taken together shall be deemed to form the contract.

(b) The "Tender Document" means the form of tender, the applicable schedules and/or additional conditions and the specifications and / or drawings as issued to the contractors for the purpose preparing tender.

(c) The expression "works" or "work" when used in the conditions of contract shall, unless there be something in the subject or context repugnant to such construction means, the works or the work contracted to be executed under or in virtue of the contract whether original or altered.

(d) The "Contractor" means the individual or firm or company, whether incorporated or not, undertaking the works and shall include his or its legal personal representative, successors and permitted assignees.

(e) "GSECL" means the Gujarat State Electricity Corporation Ltd. and the "Accepting Officer" means the officer who is authorized to sign the contract on behalf of the "GSECL."

(f) The letter "EE" means Executive Engineer who in the case of measurement and lump sum contract, direct the contractor and the letters "SE" means Superintending Engineer" and "C.E." means Chief Engineer who administers and in the case of the term contracts directs the contract.

(g) The "Engineer-in-charge" means all officers of the GSECL appointed by the Chief Engineer to supervise the works or part of the works.

(h) "Approved" and "Directed" means the approval or direction of the Chief Engineer to Superintending Engineer or the person deputed by him for the particular purpose.

(i) "B.S." means the "British Standard" as issued by the British Standards institution. "A.S." means the American Standards as issued by the American Standard Institutions and "I.S." means the "Indian Standards" as issued by the Indian Standards Institutions. Wherever the above mentioned abbreviations are preferred to, in the specifications and / or work orders, they mean the addition with all amendments current at the date of issue of tender documents of work orders.

In the case of measurement and terms of contracts "Specifications" means those contained in Gujarat State Electricity Corporation Ltd. schedule together with any amendments etc. embodied in the tender documents, "Drawings" refer to those accompanying the tender documents and/or any work orders referred therein.

(j) The "Contract Sum" means the sum accepted or the sum calculated in accordance with the prices accepted in the tender and/or the contract rate as payable to the contractor for the full and entire executing and completion of works.

(k) "The date of completion" is the date or dates of completion of the work or any part of the works set out or ascertained in accordance with the individual work orders and the tender documents or any subsequent agreed amendments thereto.

2**. Compensation for the delay**

The time limit allowed for carrying out the work as entered in the tender shall strictly observed by the contractor and shall be reckoned from the date on which the order to commerce the work is given to the contractor. The work shall through out the stipulated period of contract the proceeds with due diligence (time being deemed to be essence of contract) and for delay, the contractor shall pay compensation, an amount equal to half percent per one week for the contract amount of work or such smaller amount as per the decision of the Competent Authority of the GSECL any Delay that may take place in supply and / or erection, testing and commissioning activities beyond contractual cutoff date/stipulated period in the order shall be subjected to penalty (not liquidated damages) at the rate of ½ % of the contract price/order

price per week or part thereof subject to a maximum of 10% of the total contract value/order value(i.e.Endcostincludingtaxes&duties).

However, the total amount of compensation to be paid by the contractor, under the provision of the clauses shall not exceed 10 percent of the amount of contract value as decided by the competent authority of the GSECL. The penalty will be invariably deducted from the bills of the contractor and no refund will be given unless the competent authorities approves the reduction the reasons for delay attributable to GSECL as well as to party will be brought out clearly while putting the proposal for waiver reduction in penalty.

3. **Action when whole of Security Deposit is forfeited**

In any case in which under any clause or clauses of this contract the contractor shall have tendered himself to pay compensation amounting to the whole of his security deposit (whether paid one sum or

deducted by installments) or in the case of abandonment for the work owing to serious illness or death of the contractor or any other cause, the Executive Engineer on behalf of the GSECL, shall have powers to adopt, (a) below and any of the following courses under (b) and (c) as he may deem best suited to the interest of the GSECL.

(a) To rescind the contract (for which rescission notice of 10 days) in writing to the contractor under the hand of the Executive Engineer shall be conclusive evidence and in that case the security deposit of the contractor shall stand forfeited and absolutely at the disposal of the GSECL.

(b) To employ labour paid by the GSECL, to supply materials to carry out of the works or any part of the works debiting the contractor with the cost of the labour and the price of the materials (as to the correctness of which cost and price the certificate of the Executive Engineer shall be final and conclusive against the contractor) and crediting him with value of the work done, in all respects in the same manner and at the same rates as if it had been carried out by the Contractor under the terms of this contract and in that case the certificate of the Executive Engineer as to the value of the work done shall be final and conclusive against the contractor.

(c) To order that the work of the contractor be measured up and to take such part thereof, as shall be unexecuted, out of his heads and to give it to another contractor to complete, in which case, any expenses, which may be incurred in excess of the sum, which would have been paid to the original contractor, if the whole work had been executed by him as to the amount of which excess expenses the certificate in writing of the Engineer-in-charge shall be final, conclusive and shall be borne and shall be paid by the original contractors and shall be deducted from any money due to him by the GSECL under the contract or otherwise from his security deposit of the proceeds sale thereof or a sufficient part thereof.

In the event of the above courses being adopted by the Executive Engineer the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advances on account of or with a view to the execution of the work or the performance of the contract. And in case the contract shall be rescinded under the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any works thereof actually performed by him under this contract unless and until the Executive Engineer shall have certified in writing the performance of such works and the amount payable to him in respect thereof and he only be entitled to be paid the amount so certified.

4. **Notice for unsatisfactory progress**

If the progress or a particular portion of the work is unsatisfactory the Executive Engineer whose decision shall be final, shall notwithstanding that the general progress of work is satisfactory; be entitled to take action under Clause 3(c) after giving the contractor 10 days

notice in writing and the contractor will have no claim for compensation for any loss sustained by him owing to such actions.

5. **Action in the case of Default by Contractor**

If any case in which any of the powers conferred upon the Executive Engineer by Clauses 3 and 4 hereof, shall have exercised and the same shall not have been exercised, the non exercised thereof shall not constitute a waiver of any of the conditions hereof and such powers shall not withstanding be exercisable in any further case of default by the contractor for which, by any clauses hereof, he is declared liable to pay compensation amounting to the whole of his security deposit and liability of the contractor for past and future compensation shall remain unaffected in the event of the Executive Engineer taking action under sub clause (a) or (c) of Clause 3 he may, if he so desires, take possessions of all or any tools, plants, materials, and stores in such upon the work or the site thereof belonging to the contractor, or procured by him and intended to be used for the execution of the work of any part thereof paying for allowing for the same in account at the contract rates, or in the case of a contract rates not being applicable to current market rates to be certified by the Executive Engineer whose certificate thereof shall be final. In the alternative, the Executive Engineer may by notice in writing to the contractor or his clerk of works, foremen or other authorized agent, require him to remove such tools, plants, materials or stores from the premises within a time to be specified in such requisition to decisions to the contractor failing to comply with any such requisition, the decision of the Executive Engineer as to the expenses of any such removal and the amount of the proceed and expense of any such sale, be final and conclusive against the contractor.

6. **Extension of Time Limit**

If the contractor shall desire an extension of the time limit for completion of the work on the ground of his having been unavoidably hindered in it's execution or on any other ground, he shall apply in writing to the Executive Engineer and the Executive Engineer may, if in his opinion there are reasonable grounds for granting extension, recommend such extension as he may think necessary or proper. The decision of the competent authority in this regard shall be final and binding to the contractor. Any delay attributed to GSECL shall be compensated only by way of extending the limit.

7. **Completion Certificate**

On completion of the work the Contractor shall be furnished with Completion Certificate by the Executive Engineer of such completion but no such certificate shall be given nor shall be the work considered to be complete until works are taken over and/or duly tested and put to operative as the case may be, nor until the work shall have been measured by the Engineer-In-Charge or where the measurement have been taken by his subordinated until they have received the approval of the Executive Engineer the said measurement being binding and conclusive against the contractor.

8. **Effect of the Certificate**

No payment shall be made for any work estimated to cost less than Rs.1,000/- till after the whole of said work shall have been completed and certificate of completion given. But in the case of works estimated to cost more than Rs.1,000/- Contractor shall on submitting a monthly bill thereof, be entitled to receive payments. Proportionate to the part of the work then approved and passed by the Engineer-in-charge, whose certificate of such approval and a passing of the sum so payable shall be final and conclusive against the contract. All such intermediate

payments shall be regarded as payment by way of advance against the final payment only and not as payments for work actually done or completed and shall not preclude the Engineer-in-charge from requiring bad, unsound, imperfect or unskillful work to be removed and taken away and reconstructed or re-erected nor shall any such payment be considered as admission of the due performance of the contract or any part thereof in any respect of the accruing of the claim nor shall conclude, determine or effect in any way the powers of the Engineer-in-charge as to the final settlement and adjustment of the accounts otherwise or in any other way, vary or affect the contract. The final bill shall be submitted by the contractor within one month of the date fixed for completion of work, otherwise the certificate of Engineer-in-charge of the measurement and of total amount payable for the work shall be final and binding on all parties.

9. **Payment to Contractors**

The rates for several items of works estimated to cost more than Rs.1,000/- agreed to within shall be valid only when the item concerned is accepted, having been completed full, in accordance with the sanctioned specification. In case, where the items of the work, are not accepted, as so completed the Engineer-in-charge, may make payment on account of such items at such reduced rates, as he may consider reasonable in the preparation of final or running accounts bills.

10. **Bills**

The bill shall be submitted by the contractor each month on or before the date fixed by the Engineer-in-charge, for all works, executed in the previous month and the Engineer-in-charge shall take or cause to be taken the requisite measurement for the purpose or having the same verified and the claim so far as it is admissible, shall be adjusted, if possible, within ten days from the presentation of the bills. If the contractor does not submit the bill, within the time fixed, as aforesaid, the Engineer-in-charge may depute a subordinate to measure up the said work in the presence of the contractor or his duly authorized agent, whose counter signature in the measurement shall be sufficient warrant and the Engineer-in-charge may prepare a bill from such list which shall be binding on the contractor in all respects.

11. **Supply of Materials to Contractor**

If the specification of the estimated work provides for use of any special description of material to be supplied from the GSECL's Stores or if it is required that the contractor shall use certain stores to be provided by the Engineer-in-charge (such material and stores and the prices to be charged thereof as here in after mentioned being so far as practicable for the convenience of contractor but not so as in any way to control, the meaning or effect of the contract specified in the schedule or memorandum here to annexed) the contractor shall be supplied with such materials and stores as may be required from time to time be used by him for the purpose of the contract only and the value of the full quantity of materials and stores so supplied shall be set off or deducted from any sum due to thereafter to become due to the contractor, under the contract or otherwise or from the security deposit or the proceeds of sale thereof if the deposit is held in Government Securities the same or a sufficient portion thereof, shall be sold for the purpose. All materials supplied to the contract shall remain the absolute property of GSECL and shall on no account be removed from the site of the work and shall at all time be open to inspection by the Engineer-in-charge. Any such materials un used and in perfectly good condition at time of completion or determination of the contract shall be returned to the

GSECL's store if the Engineer-in-charge so requires by notice in writing given under his hands but the contractor shall not be entitled to return any such materials except with consent and he shall have no claim for compensation on account of any such materials supplied to him as aforesaid but remaining unused by him or for any wastage in or damage thereto. The contractor shall be responsible for the loss, destruction or deterioration of the materials, stores or articles supplied to him by the GSECL even if such loss, destruction or deterioration has occurred under any circumstances whatsoever beyond his control as if the materials, stores or articles so supplied were his property.

12. **Works to be executed in accordance with specifications, drawings, orders etc.**

The contractor shall execute in whole and every part of work in the most substantial and workmanlike manner and both as regarding materials and in every other respect in strict accordance with the specification. The Contractor also shall confirm exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Engineer-in-charge and lodged in his office and to which the contractor shall be entitled to have access for the purpose of Inspection at such office, or in the site of the work, during office hours and the contractor shall, also if he so requires, be entitled at his own expenses to make or cause to be made copies of the specification, and of all such designs, drawings and instructions as aforesaid.

13. **Alteration in Specifications and Designs not to invalidate Contracts.**

The Executive Engineer shall have powers to make any alteration, or addition to the original specification designs, and instructions that may appear to him to be necessary or advisable during the progress of the work and the contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing, signed by the Engineer-in-charge and such alterations shall not invalidate the contract. Any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respect on which he agreed to do the main works, and at the same rates as are specified in the tender for the main work.

Where, however, the works is to be executed according to the designs, drawing and specifications recommended by the contractor and accepted by the competent authority, the alteration above referred to shall be within the scope of such designs, drawings, and specifications appended to the tender.

14. **Rates for works not entered in Estimate or Schedule of Rate of the District**

If the additional and altered work includes any class of work for which no rate is specified in this contract, then such class of work shall be carried out at state R. & B. Department of Surat district the rates entered in the Schedule of Rates of the Division or at the rate mutually agreed upon between the E.I.C; and the contractor, whichever are lower. If the additional or altered work for which no rate is entered in the Schedule of Rates of the Division is ordered to be carried out before the rates agreed upon then the contractor within seven days of date of receipt by him of the order to carry out the work inform the E.I.C; for the rate which in his intension to charge for such class of work and if the E.I.C; does not agree to this rate he shall be noticed in writing be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner as he may consider advisable provided always that if the rates shall have been determined as lastly here in before mentioned then in such case he shall only

be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the ENGINEER-IN-CHARGE In the event of dispute, the decision of the CHIEF ENGINEER will be final.

15. **Extension of Time Limit in consequence of Addition or Alteration.**

The time limit for the work shall be extended in the proportion that the increase in its cost occasioned by alterations or additions bears to the cost of the original contract work and the certificate of the Engineer-in-charge as to such proportions shall be conclusive.

16. **No compensation for Alternation in or Restriction of Work to be carried out.**

If at any time, after the execution of the contract documents the Engineer-in-charge shall, for any reason whatsoever, require the whole or any part of the work, as specified in the tender, to be stopped for any period or shall not require he whole or part of the work to be carried out at all or to be carried out by the contractor, he shall give notice in writing of the fact to the contractor who shall thereupon suspend or stop the work totally or partially as the case may be in any such case, except as provided here under the contractor shall have no claim to any payment or compensation what so ever on account of any profit or advantage which he might have derived from the execution, of the work in full but which he did not so derive in consequence of the full amount of work not having been carried out or on account of any loss that he may be put to on account of materials purchased or agree to be purchased or for unemployment of labour recruited by him. He shall not also have any; claim for compensation by reason of any alterations having been made in the original specification, drawings, designs and instructions which may involve any curtailment of the work as originally contemplated. Where however, materials have already been purchased or agreed to be purchased by the contractor before receipt by him of said notice, the ENGINEER-IN-CHARGE provided they are not in excess or requirement and are of approved quality and /or shall be compensated for the loss, if any, that he may put to in respect of materials agreed to be purchased by him. The amount of such compensation to be determined by the ENGINEER-IN-CHARGE whose decision shall be final. If the contractor suffers any loss on account of his having to pay, his labour charges during the period, during which the stoppage of work has been ordered under this clause the contractor shall on application be entitled to such compensation on account of labour charges as the EI.C. whose decision shall be final, may consider reasonable provided that the contractor shall not be entitled to any compensation on account of labour charges if, in the opinion of the ENGINEER-IN-CHARGE, the labour could have been employed by the contractor elsewhere for the whole or part of the period during which the stoppage of the work has been ordered as aforesaid.

17. **No claim to compensation on account of loss due to delay in supply of materials by GSECL.**

The contractor shall not be entitled to claim any compensation from GSECL for the loss suffered by him on account of delay by GSECL in the supply of materials entered in Schedule A where such delay is caused by:

- ⇨ Difficulties relating to supply of railway wagons
- ⇨ Force Majeure
- ⇨ Act of God
- ⇨ Any other reasonable cause beyond the control of GSECL including Shortage of materials to be supplied by the GSECL & difficulties in time by reaching at the site of any materials equipments.

In the case of such delay in the supply of materials, GSECL shall grant such extension of time for the completion of the works as shall appear to the E.I.C. to be reasonable in accordance with circumstances of the case. The decision of the ENGINEER-IN-CHARGE as to the extension of time shall be accepted as final by the contractor**.**

18**. Time Limit for Compensation Claims**

Under no circumstances, whatsoever, shall the contractor be entitled to any compensation from GSECL on any account unless the contractor has claimed in writing to the ENGINEER-IN-CHARGE within one month of the cause thereof.

19**. Action and Compensation payable in case of Bad Work**

If at any time, before the security deposit is refunded to the contractor, it shall appear to the ENGINEER-IN-CHARGE or his subordinate in charge of the work that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of inferior quality or that any materials or articles provided by him for the execution of the work are unsound or of a inferior quality to that contracted for or are otherwise not in accordance with the contract, it shall be lawful for Engineer-in-charge to intimate this fact in writing to the contractor and then no withstanding the fact that the work, materials or articles complained of, may have been inadvertently passed, certified and paid for, the contractor shall be bound forthwith to rectify or remove and reconstruct the work so specified in whole or any part, as the case may require or if so required shall remove the materials or articles so specified and provided other suitable materials or articles at his own charge and cost, and in the event of his failing to do so within a period to be specified by the Engineer-in-charge in the written intimation aforesaid the contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimate for every day, not exceeding ten days during which the failure so continue and in the event of any such failure as aforesaid the Engineer-in-charge may rectify or remove and re-execute the work or remove and replace the materials or articles complained of, as the case may be, at the risk and expense in all respects of contractor should the Engineer-in-charge consider that any such inferior work or materials as described above may be accepted, or made use of, it shall be within his discretion to accept the same as such reduced rates as he may fix thereof.

Provided that in the case of any work of which visible check is not possible, if the Engineer-in-charge or his subordinate in charge of the work feels that such work has been executed with unsound, imperfect or unskillful workmanship or with materials of inferior quality, he shall take sample tests at random, cost of which shall have to be borne by the contractor and if after taking such test, part of such work is found to be defective in any respect or to have been executed with materials of inferior quality, then the contractor shall be paid for the whole work such amount as may be fixed by the office of the Engineer-in-charge on the basis of the lowest quality of work found by him in such samples tests.

Explanation: I

Sample Test shall mean:

(i) In relation to poles fixed as line supports, the token of one pole out of every 100 poles after taking it out from its foundation for inspection.
(ii) In relation to any other work, such test as may be considered necessary, by the Engineer-in-charge or his subordinate in charge of the work.

Explanation: II

Cost of the sample test shall mean cost incurred for the purpose of taking Samples & test and for restoring tested work to its original condition.

20**. Work to be opened to Inspection, Contractor or Responsible Agent to be present**

All works under execution or in course of execution in pursuance of the contract shall at all times be open to the inspection and supervision of the ENGINEER-IN-CHARGE and his subordinate and contractor shall at all times, during the usual working hours and at all other times at which reasonable notice of the intension of the ENGINEER-IN-CHARGE or his subordinates to visit the works shall have been given to the contractor, during which period either he should be present to receive order and instruction, or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the contractor's duly authorized Agent shall be considered to have the same force and effect as if they had been given to the contractor himself.

21**. Notice to be given before work is covered up.**

The contractor shall give not less then five days notice in writing to the ENGINEER-IN-CHARGE or his subordinates in charge of the work, before covering up or otherwise placing beyond the reach of measurement of any work, in order that the same may be measured and correct dimensions thereof, taken before the same is so covered up or placed beyond the reach of measurement and shall not covered up or placed beyond the reach of measurement and work without the consent in writing of ENGINEER-IN-CHARGE or his subordinate in charge of work, If any work shall be covered up or placed beyond the reach without such notice having been given or consent obtained, the same shall be uncovered at the contractor's expense, and in default thereof, no payment or allowance shall be made for such work, or for the materials, with which the same, was executed.

22. **Contractor's Liabilities**

The Contractor shall supply, at his own cost, all materials (except such special materials, if any as may be supplied form the GSECL stored in accordance with the contract) plant, tools, appliances, implements, ladders, cordage, tackles, scaffolding and any temporary works which may be required for the proper execution of the work., in the original, altered or substituted form and whether included in the specification or other document forming part of the contract or referred to in these conditions or not and which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-charge as to any matter on which under these conditions, he is entitled to be satisfied or which he is entitled to require together with carriage thereof to and from the work, the contractor shall also supply without charge, the requisite number of persons for setting out works, and counting, weighting and assisting in the measurement of, examinations at the time and from time to time of the work or materials, failing this, the same may be provided by the Engineer-in-charge at the expenses of the contractor and the expenses may be deducted from any money due to the contractor under the contract or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof the contractor shall provide all necessary fencing and light required to protect the public from accident and shall also be bound to bear expenses of defense of every suit, action or other legal proceedings of law that may be brought by any person for injury sustained. Owing to neglect of the above precautions and to pay any damage and costs which may be awarded in any such suit, action or proceedings to any such persons, or which may with the consent of the contractor be paid in compromising any claim by any such person.

23. **Contractor Liable for all Damages**

Compensation for all damage done intentionally or unintentionally by contractor's laborers, whether in or beyond the limit of GSECL's property, shall be estimated by the ENGINEER-IN-CHARGE, or such other office, as he may appoint and the estimate of the ENGINEER-IN-CHARGE, subject to the decision of the Chief Engineer, on appeal, shall be final and the contractor shall be bound to pay the amount of the assessed compensation demand, failing which, the same will be recovered from the contractor as damages or deducted by the Engineer in charge from any sums that may be due to or become due from GSECL to the contractor under this contract or otherwise.

The contractor shall bear the expenses of defending any action or other legal proceedings that may be brought by any person for injury sustained by him owing to neglect of precautions to prevent the spread of fire and he shall also pay any damage and costs that may be awarded by the court if in consequence.

24**.** **Rescission of Contract and Forfeiture of Deposit.**

The contractor shall not assign or sublet, without the written approval of the Engineer-in-charge and if the contractor assign or sublet his contract, or attempt to do so or become insolvent or commence any proceedings to be adjudicated as insolvent or make any composition with creditors, attempt to do so, the Engineer-in-charge may, by notice in writing rescind the contract. Also, if any bribe, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise shall either directly or indirectly be given, promised or offered by the contractor or any of his servants, or agents, or any person to the employee of GSECL in any way relating to his office or employment or if any such officers or persons shall become in any way directly or indirectly interested in the contract, the Executive Engineer may, by 10 day's notice in writing, rescind the contract. In the event of a contract being rescinded the Security Deposit of the contractor shall there upon stand forfeited and be absolutely at the disposal of GSECL and the same consequences shall ensure as it the contract has been rescinded under clause 3 thereof and in addition the contractor shall not be entitled to recover or be paid for any work thereof actually performed under the contract.

25. **Compensation**

All sums payable by a contractor by way of compensation under any of these conditions shall be considered as a reasonable compensation to be applied to the use of GSECL, without reference to the actual loss or damage sustained and whether any damage has not been sustained.

26. **Change in the constitution of firm to be notified**

In the case of tender by partners of a firm, any change in the constitution of firm shall be forthwith notified by the contractor to the Executive Engineer for his information.

27**.** **Works under direction of Chief Engineer**

All works to be executed under the contract shall be executed under the direction and subject to the approval of the Chief Engineer of the power house, Engineer-in-charge for the time being who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

28**.** **Decision of Chief Engineer to be final.**

Except where otherwise specified in contract and subject to the power delegated to him by GSECL under the GSECL's rule, then in force the decision of the Chief Engineer of the Power house / ENGINEER-IN-CHARGE for the time being shall be final, conclusive and binding on all of the specification, designs, drawings and instructions herein before mentioned and as to the quality of workmanship or material used on the or as to any other question, claim, right matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning, the works or the execution or failure to execute the same, whether arising during the progress of the work or after the completion or abandonment thereof.

29. **Arbitration**

'ALL QUESTIONS, DISPUTES OR DIFFERENCES, WHATSOEVER WHICH MAY AT AN TIME ARISE BETWEEN THE PARTIES TO THIS CONTRACT IN CONNECTION WITH THE CONTRACT OR ANY MATTER ARISING OUT OF OR IN RELATION THERE TO, SHALL BE REFERRED TO THE "GUJARAT PUBLIC WORKS CONTRACTS DISPUTES ARBITRATION TRIBUNAL" AS PER THE PROVISIONS OF THE GUJARAT PUBLIC WORKS CONTRACTS DISPUTES ARBITRATION TRIBUNAL ACT, 1992.

The reference to arbitration proceedings under this clause shall not:

a) Affect the right of the Engineer-in-charge to take possession of all or any tools, plants, materials and stores, in or upon the work or site thereof or belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof.
b) Preclude the Engineer-in-charge from utilizing the materials purchased by the Contractor in any work or from removing such materials to other place, during the period the work is stopped or suspended in pursuance of notice given to the contractor under General Conditions.
c) Entitle the contractor to stop the progress of the work or carrying out the additional or altered work in accordance with the provision of General Conditions for the work where there is no specification.
d) Preclude the GSECL from getting the work done by another agency.

Neither party is entitled to bring a claim to arbitration latest by the thirty days after the expiration of the defects liability period.

The provisions of the Arbitration and conciliation Act, 1996, Gujarat Public Works Contract Disputes Arbitration Tribunal Act, 1992 and rules made there under shall apply to the arbitration proceeding under this clause.

30**.** **Stores to be obtained from GSECL**

The Contractor shall obtain from the GSECL Stores, such articles as are mentioned in Schedule 'A' which may be required for the work or any part of the work or in making up any articles required there for or in connection therewith, unless he has obtained permission in writing from the ENGINEER-IN-CHARGE or obtained such stores and articles from elsewhere. The value of such stores and articles as may be supplied to the contractor by the Engineer-in-charge will be debited to the contractor in his account at the rate shown in the Schedule "A" attached the contractor and if they are not entered in said schedule they shall debited to him at cost price which for the purpose of this contract shall include cost of carriage and all other expenses whatsoever which may have to be incurred in obtaining delivery of the same at the stores aforesaid and further overhead charges 15%.

The Contractor shall be responsible for the loss destruction or deterioration of the materials, stores or articles supplied to him by the GSECL, even if such loss destruction or deterioration has occurred under any circumstances whatsoever beyond his control as if the material, stores or articles so supplied were his property. The contractor shall be responsible for returning the residual materials after completion of the contract and if fails to return, the balance material supplied to him by the GSECL, the cost of the residual materials will be recovered form the contractor at the market rate or stock issue rate whichever be higher at the time of materials account plus 15%.

31.1 **Lump Sum in Estimate**

When the estimate on which tender is made, includes lump sums in respect of parts of the works the contractor shall be entitled to payment in respect of the items of works involved or the part of the work in question at the same rates as are payable under this contract or such items or if the part of work in question is not in the opinion of the Engineer-in-charge capable to measurement the Engineer-in-charge may at his discretion pay the lump sum amount entered in the estimate and the certificate in writing of the Engineer shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provisions of the clause.

31.2 **Lump Sum Tenders**

Whenever lump sum tenders have been invited for building or other structures of the same type, design, the contractor shall submit his bill stated in Clause No.10 and the Engineer-in-charge not below the rank of Executive Engineer shall certify by general measurement or by other method considered suitable to him, the value of work done and the contractor shall be paid monthly a sum equal to 90% of the total value the work so certified, since the last payment, after deducting a part or whole of the secured advance if not already paid for the materials utilised on the works. An additional secured advance for any fresh materials brought on site will also be paid if certified by the officer not below the rank of Executive Engineer. After the work is completed final bill would be paid on the certification of officer not below the rank of Executive Engineer, that the work is done according to drawing and specifications attached to the tender. If any additions and alteration have been carried out, detailed measurements in respect thereof shall be recorded and extra payment or deductions are regulated as per item rates quoted by the contractor while submitting the tender and if there are any items in the additions and alterations for which the contractor has not quoted a rate, the payment shall be as per Clause 14 above.

32. **Action where no specifications.**

In the case of any class of work for which there is no such specifications as is mentioned in clause 1. such work shall be carried out in accordance with the divisional specifications and in there event of there being no divisional specifications, the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-charge / consultant of the GSECL etc.

33. The GSECL reserves the right to terminate this rate contract at any time during its tendency without giving notice of termination or any reasons thereof**.**

34. The GSECL will be entitled to deduct directly form the bills , to be paid to the Sub-contractor and Labourers any sum or sums payable by contractor and which sum/sums the GSECL is required to pay as a principal employer on account of contractor’s default in respect of all

liabilities referred to in above clauses.

35. Nothing in the contract document stated shall any wise constitute any workmen/ employees of the contractor or any sub-contractor as or to be workmen/employee of the power, or place obligation or liability in respect of any such workmen/ employee upon the GSECL.

NOTE - The prevailing Act at the time of execution of work over and above act not specified herein shall be binding to the contractor.

36**.** No Claim for Variation in Quantities of Work

Quantities shown in the tender are approximate and no claim shall be entertained for quantities of work actually executed, being either more or less up to any extent than those entered in the tender or less than those entered in the tender or estimate.

37. No Claim for Compensation for Delay in staring work

No compensation shall be allowed for any delay caused into starting of work on account of acquisition of land and in the case of clearance for works or any delay in according sanction to estimates.

38. No Claim for Compensation for delay in execution of work

No compensation shall be allowed for any delay in execution of the work on account of water standing in borrow pits or compartment. The rates are inclusive for hard or cracked soil, excavation in mud, sub-soil water or water standing in borrow pits and no claim for an extra rate shall be entertained unless otherwise expressly specified & mentioned in the tender.

39. Entering upon or commencing any portion of work

The contractor shall not enter upon or commence any portion of work except with the written authority or instructions of the Executive Engineer or his subordinate in charge of the work, failing such the contractor shall have no claim to ask for measurement or payment for work.

40. Method of Payment

Payment to contractors shall be made by A/c payee cheques provided the amount exceeds Rs.50/-. Amount not exceeding Rs.50/- will be paid in cash. Generally payment may take 30 to 60 days after passing of bills depending on availability of fund.

41. Acceptance of conditions on tendering for work.

Submission to tender or acceptance of work order shall imply acceptance of these conditions of tender by contractor.

42. Employment of Scarcity Labour

If government declares a state of scarcity or famine to exist in any village situated within 20kms of the work, the piece worker / contractor shall employ upon such part of the work as are suitable for unskilled labour; any person certified to him by the Executive Engineer or by any person to whom Executive Engineer may have delegated this duty in writing to be in need of relief and shall be bound to pay such person wage not below the minimum, which Government may have fixed in this behalf from time to time. Any implementation of this clause shall be decided by the Superintending engineer / Engineer-in-Charge whose decision shall be final and binding on the piece worker/contractor.

43 Employment of Technical Persons

The contractors who are registered under class 'AA' , 'A', 'B' and 'C' or such contractors shall employ adequate nos. of technically qualified personnel possessing minimum a Diploma of recognized Technical institution, for executing the work of the GSECL.

44 The contractor shall produce certified copies of documents, in respect of workers deployed by him at GSECL,Ukai as below metioned, before Dy. G.M. (HR)/IRO/LWO/In-charge of HR dept.

List of documents to be produced in certified copies on starting of contract:

1. Copy of appointment letter of each worker deployed at GSECL,UKAI.
2. Copy of Labour License if require to deployed 10 or more than 10 contract labours.
3. Copy of insurance policy for each worker deployed at UTPS under the workmen compensation Act, 1923.
4. Copy of P.F. code allotment letter.

List of documents to be produced in certified copies on every month during the contract period:

1. Copy of wage register (Duly signed by representative of GSECL, Ukai).
2. Copy of over time register (Duly signed by representative of GSECL,UKAI)
3. Copy of Attendance register.
4. Original copy of provident fund deposition form dully signed and sealed for each month (In format provided by GSECL: Ukai).
5. Copy of P.F. challan.
6. ECR FORM (which reflects the amount of PF paid for each employee or contract labour engaged by contract labour engaged by contractor at GSECL,Ukai).
7. Copy of P.F. Returns (Form 5,10, 12A).

List of documents to be produced in certified copies on every year during the contract period:

1. Copy of P.F. Returns (Form 6A, 3A).
2. Copy of Bonus Register (Patrak-C as per payment of Bonus Act).
3. Copy of Earned Leave Register (As per Factories' Act, 1948).

Original copies of above mentioned documents and other legal documents shall be produced before Dy.G.M. (HR)/IRO/LWO/In-charge of H.R. Dept as and when demanded.

If contractor failed to submit above documents in that case his payment of Bill shall be withheld by GSECL,UKAI and on submission of the required documents the said bill shall be released by GSECL,Ukai.

Signature of contractor
With Rubber Stamp

Chief Engineer (Gen.)
GSECL: TPS: UKAI.

GSECL **Ukai TPS**

Date:

INTEGRITY PACT

OUR ENDEAVOUR

To create an environment where business confidence is built through best business practices and is fostered in an atmosphere of trust and respect between providers of goods and services and their users for the ultimate benefit of society and the nation.

GSECL'S COMMITMENT

- To maintain the highest ethical standards in business and professions.
- Ensure maximum transparency to the satisfaction of stakeholders.
- To ensure to fulfill the terms of agreement / contract and to consider objectively the view point of parties.
- To ensure regular and timely release of payments on due dates for work done.
- To ensure that no improper demand is made by employees or by anyone on our behalf.
- To give maximum possible assistance to all the Vendors / Suppliers / Service Provider and others to enable them to complete the contract in time.
- To provide all information to suppliers / contractors relating to contract / job which facilitates him to complete the contract / job successfully in time.
- To ensure minimum hurdles to vendors / suppliers / contractors in completion of agreement / contract / work order.

Seal & Signature
(GSECL's Authorized Signature)

CHIEF ENGINEER (GEN.)
GSECL:TPS:UKAI

PARTY'S COMMITMENT

- Not to bring pressure recommendations from outside GSECL to influence its decision.
- Not to use intimation, threat, inducement or pressure of any kind on GSECL or any of its employees under any circumstances.
- To be prompt and reasonable in fulfilling the contract, agreement, legal obligations.
- To provide goods and / or services timely as per agreed quality and specifications at minimum cost to GSECL.
- To abide by the general discipline to be maintained in our dealings.
- To be true and honest in furnishing information.
- Not to divulge any information, business details available during the course of business relationship to others without the written consent of GSECL.
- Not to enter into cartel / syndicate / understanding whether formal / non-formal so as to influence the price.

Seal & Signature
(Party's Authorized Person)

Name :

GUJARAT STATE ELECTRICITY CORPORATION LIMITED
Ukai Thermal Power Station, Ukai Dam, Taluka Fort Songadh, DistTapi– 394680. Ph. 91-2624-233215, 233257
Fax: 91-2624-233300, 233315e-mail: ukaiceg@gebmail.com Website: www.gsecl.in

PRICE BID

WT - 3525

RFQ NO: 44018

Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters of Ukai TPS.

Please submit price bid duly signed & stamp (without stating above/below rates) along with Technical Bid.

SCHEDULE – B

Name of Work: **Supply, Installation & Commissioning of Online Energy Management System (EMS) including retrofitting of energy meters of Ukai TPS.**

Item No.	Description	HSN/SAC Code	Qty.	Unit	Rate In Rs.	Total In Rs.
A	**Energy Meters**					
1	HT Meter 3P4W Class 0.2 with Ethernet Port		263	Nos.	13050	34,32,150.00
2	HT Meter 3P4W Class 0.2 with Ethernet Port - Spare Meters		20	Nos.	13050	2,61,000.00
3	LT CT Meter 3P4W Class 0.5 with Ethernet Port		152	Nos.	10020	15,23,040.00
4	LT CT Meter 3P4W Class 0.5 with Ethernet Port - Spare Meters		15	Nos.	10020	1,50,300.00
B	Software for Online Data Monitoring and Report generation with 25 Clients License :		1	No.	24,75,666	**24,75,666.00**
C	**Resin Cast Ring Type LT CT of Class 0.5**					
1	Current Transformers		92	Set (1 set = 3 Nos of CTs)	1,408	1,29,536.00
D	**Communication & other Miscellaneous Hardware**					
1	Desk Top PC with Windows Professional Licensed OS Processor :Intel i7, 3.2 Ghz, 04 Core Memory : 08 GB RAM HDD: 300 GB Warranty: 3 years OS: Windows 10 OEM Display Screen size & type: 22" or higher wide range TFT/LCD , Flat Monitor No. & type of serial ports: 2 Nos. No. & type of parallel ports: 1 Nos No. of USB ports: 4 Nos (Min.). Licensed OS to be supplied.		12	Nos.	75,455.00	9,05,460.00
2	UPS :- 600VA with standard backup (May be removed)		12	Nos.	5547	66,564.00
3	3 Core 2.5 Sq. mm M/S PVC insulation aromoured cable		9,300	Mtrs.	245.00	22,78,500.00
	Total Hardware for and accessories for Optical Fiber Network					
E	**OFC Hardware** **All Below hardware shall Strictly be in Compliance with the Specifications given in**					

	Document Technical Specification for Network Passive Components					
E1	LAN Cable for Meter Communication, CAT6 A 10G Shielded LSZH U/FTP Cable Technical Specification Annexure E- Clause E1 Approved Make : Systimax / Molex / Panduit / Simons		45	Nos.	26,205.00	11,79,225.00
E2	SITC of PowerCat 6 Jack RJ45 568A/B STP/FTP as per Technical Technical Technical Specification Annexure E- Clause E2/E3 Approved Make : Systimax / Molex / Panduit / Simons		500	Nos.	652.00	3,26,000.00
E3	SITC of Synergy Wall Plate 1 Port - 86mmx86mm- Including Back Box / Co-Box Technical Specification Annexure E- Clause E2/E3 Approved Make : Systimax / Molex / Panduit / Simons		500	Nos.	151.00	75,500.00
E4	structured Network termination between LAN and Meter, Cat 6 STP/FTP 568A/B LS0H - 2m as per Technical Technical Specification Annexure E- Technical Specification Annexure E- Clause E4Approved Make : Systimax / Molex / Panduit / Simons		500	Nos.	589.00	2,94,500.00
E5	SITC of 24 Port Patch Panel RJ45 568A/B STP/FTP C6 - 1U as per Technical Technical Specification Annexure E- Clause E5 Approved Make : Systimax / Molex / Panduit / Simons		36	Nos.	25,407.00	9,14,652.00
	FIBER PART					
E6	Optical Fiber Cable 12F Outdoor - Armoured Loosetube Construction Single Mode as per techincal specification Approved Make : Systimax / Molex / Panduit / Simons		15,000	Mtrs.	90.00	13,50,000.00
E7	Intelligent Singlemode 24P Duplex LC Fibre Patch Panel Approved Make : Systimax / Molex / Panduit / Siemon		2	Nos.	48,222.00	96,444.00
E8	Intelligent OFPC LC-LC DUP SM OS1 LS0H - 3mm Patch cords Approved Make : Systimax / Molex / Panduit / Siemon		12	Nos.	2,914.00	34,968.00
E9	24 Port Configurable Fibre Sliding Drawer - Unloaded		23	Nos.	5,610.00	1,29,030.00

	ComponentsApproved Make : Systimax / Molex / Panduit / Siemon					
E10	LC Duplex 12 Fibre SM Adapter Plate - Blue, With Splice Tray and Blanking Plates as per requirement(s) Approved Make : Systimax / Molex / Panduit / Siemon		46	Nos.	5,733.00	2,63,718.00
E11	LC type Pigtail SM 1.5 mts Approved Make : Systimax / Molex / Panduit / Siemon		552	Nos.	578.00	3,19,056.00
E12	LC-LC type Patch cords SM 3 mts Duplex Approved Make : Systimax / Molex / Panduit / Siemon		310	Nos.	2,914.00	9,03,340.00
E12.a	SITC of Splice tray Approved Make : Systimax / Molex / Panduit / Siemon		23	Nos.	1,412.00	32,476.00
E12.b	SITC of Blank plates Approved Make : Systimax / Molex / Panduit / Siemon		46	Nos.	365.00	16,790.00
	Intelligent Passive Infrastructure Solution Scanner & software					
E13	Intelligent Scanner 576 Channel , for Intelligent Fiber Patch Panel Approved Make : Systimax / Molex / Panduit / Siemon		1	Nos.	2,41,710.00	2,41,710.00
E14	Intelligent Scanner 96 Channel PP License : License from Authorized OEM to be provided Approved Make : Systimax / Molex / Panduit / Siemon		1	Nos.	75,115.00	75,115.00
E15	Intelligent Server Application License (Same make of Passive Components) - License from Authorized OEM to be provided		1	Nos.	1,07,549.00	1,07,549.00
E15.a	SITC of CAT 6 Patch cord, 2 Mtr, Orange -LSZHT Approved Make : Systimax / Molex / Panduit / Siemon		2	Nos.	590.00	1,180.00
	ACTIVE PART					
E16	Core Level: Advance Layer 3 Fully Managed 24 Ports Combo Gigabit Stackable Switches.Network Switch : Layer 3 Enterprise Managed Network with Combo 24 Base-X SFP Ports / Base-T Copper Ports + 4 SFP+ Ports & Should have Additional Module Slot to Support 2x40G Slots. The Switch shall be Supplied with all the Required Licenses for L3 Features.The Switch shall be Stackable & shall be used in		2	Nos.	4,50,425.00	9,00,850.00

	Active-Active Failover Mode at the Central Location. The Required Stack Module / Stack Cables shall be Supplied.Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade					
E17	Gigabit Enterprise 8 Port 10/100/1000 Base-T Copper Ports + 2 SFP Ports Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃The Edge Level: Enterprise Grade layer 2 Fully Managed 8 Ports Gigabit Switches. Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade		6	Nos.	49,893.00	2,99,358.00
E18	Gigabit Enterprise 16 Port 10/100/1000 Base-T Copper Ports + 2 SFP Ports Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃ Edge Level: Enterprise Grade layer 2 Fully Managed 16 Ports Gigabit Switches. Approved Make : Allied Telesis / Cisco / Juniper / Arista		12	Nos.	62,988.00	7,55,856.00
E19	Gigabit Enterprise 24 Port 10/100/1000 Base-T Copper Ports + 4 SFP Port Layer 2 Managed Network Switch with a Minimum Operating Temperature Range of 0℃ to 50℃ Edge Level: Enterprise Grade layer 2 Fully Managed 24 Ports Gigabit Switches. Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade		13	Nos.	71,802.00	9,33,426.00
E20	1000 BaseLX (10km) SFP Module (Transciever)The SFP Module (Transciever) shall Preferably be of the Same make as that of the Network Switch. Approved Make : Cisco / Allied Telesis / Juniper / Avaya / Extreme / Brocade		56	Nos.	15,105.00	8,45,880.00
E21	License key for NMS Enterprise Edition 100 Starter. Supports 100 managed nodes (or subscriber CPEs) and 5 NMS clients. Approved Make : Allied Telesis / Cisco / Juniper / Arista		1	Nos.	1,02,329.00	1,02,329.00

E22	Server for NMS Software & Intelligent Passive Infrastructure Solution SoftwareApproved Make : Dell / HP / IBM		2	Nos.	2,25,887.00	4,51,774.00
	NETWORK RACK PART					
E23	Wall Mount 12U x 600mm W x 500mm D ,Front Glass Door (tinted, Toughened) with Lock & Key, with 2 Fan, 5 Socket Power strip with Fuse, MCB, Hardware screw packet - 1 nos and pvc box type cable Manager - 2 Nos Approved Make : Valrack / WQ / APW		2	Nos.	2,25,755.00	4,51,510.00
E24	Floor Standing 22U x 600mm W x 800mm D ,Front Glass Door (tinted, Toughened) with Lock & Key, with 2 Fan, 5 Socket Power strip with Fuse, MCB, Hardware screw packet - 1 nos and pvc box type cable Manager - 4 Nos Approved Make : Valrack / WQ / APW		2	Nos.	227,122.00	4,54,244.00
E25	42U, 800 x 1000 MM Depth Floor standing Perforated Door Rack with 10 Socket 5/15 AMP - PDU with Fuse & MCB- 2 Nos, Hardware screw Pkt - 1 Nos, 4 Nos of FAN, Hard ware tray - 1 Nos. Approved Make : Valrack / WQ / APW		2	Nos.	2,35,222.00	4,70,444.00
	PIPE ACCESSORIES					
E26	Supply of 25 mm HDPE for Cat6 Cabling along with proper fittings & Clamps		8,000	Mtrs.	45.00	3,60,000.00
E27	Supply of 32 mm HDPE for Cat6 Cabling along with proper fittings & Clamps		3,000	Mtrs.	55.00	1,65,000.00
E28	Supply of 40 mm HDPE for Cat6 Cabling along with proper fittings & Clamps		2,000	Mtrs.	69.00	1,38,000.00
E29	Supply Of 25 mm ISI HDPE Pipe for fiber laying on wall with proper clamps/underground .		15,000	Mtrs.	45.00	6,75,000.00
E30	Supply Of 1 inch G.I. ISI marked Pipe		100	Mtrs.	353.00	35,300.00
E31	25mm Flexible pipe		1,000	Mtrs.	319.00	3,19,000.00
F	**Data Center H/W**					
1	Application serverIntel Xeon E5-2600 v2 or E5-2600 v3 series Processor. Server should provide an intelligent socket that would ease the installation of CPU to		1	No.	8,05,237.00	8,05,237.00

	avoid errors caused by mis-inserting processors during install or upgrade, 2 processor scalable,3.0Ghz or Higher, 16 Core, 8MB Cache or higher, 4x8GB Memory (Proposed memory should support reliably identify and verify whether installed memory has passed the rigorous OEM qualification and testing process to increase system reliability),2x600GB SAS Hard disk drive should support "Do Not Remove" caution indicator to avoid human errors in replacing failed HDD Hot Swap, DVD RW, Integrated RAID 0,1Display Screen size & type: 22" or higher wide range TFT/LCD , Flat MonitorOS : Windows Server 2012 Std Edition					
2	Database server , (Main and backup) Intel Xeon E5-2600 v2 or E5-2600 v3 series Processor. Server should provide an intelligent socket that would ease the installation of CPU to avoid errors caused by mis-inserting processors during install or upgrade, 2 processor scalable, 3.0Ghz or Higher, 8 Core, 12MB Cache or higher, 4x8GB Memory (Proposed memory should support reliably identify and verify whether installed memory has passed the rigorous OEM qualification and testing process to increase system reliability, 4*500GB Hot Swap SAS/SATA Hard disk drive should support "Do Not Remove" caution indicator to avoid human errors in replacing failed HDD, DVD RW, RAID 0,1, 5 OS : Windows Server 2012 Std Edition		2	Nos.	9,50,000.00	19,00,000.00
3	Laptop - PC		1	Nos.	75,455.00	75,455.00
4	SQL Server 2012 Standard Edition- CAL based		1	No.	1,03,501.00	1,03,501.00
5	Windows serer 2012 standard addition		25	No.	13,117.00	3,27,925.00
6	Ethernet Switch 24 Port , managed		1	No.	39,927.00	39,927.00
7	Network rack for Server & Switch (Size : 42U)		2	No.	70,225.00	1,40,450.00

8	Firewall :Firewall Throughput-950 Mbps, Firewall Throughput (Packets Per Second) 180 Kpps, Concurrent Sessions (TCP) 900,000, New Sessions/Second (TCP) 15,000, IPsec VPN Throughput (512 byte) 1 75 Mbps, Gateway-to-Gateway IPsec VPN Tunnels 200, Client-to-Gateway IPsec VPN Tunnels 250, SSL-VPN Throughput 35 Mbps, Concurrent SSL-VPN Users (Recommended Maximum, Tunnel Mode) 80 SSL, Virtual Domains (Default / Maximum) 5 / 5, High Availability Configurations Active/Active, Active/Passive, Clustering		1	No.	2,15,030.00	2,15,030.00
9	Connecting cables , Connectors , other miscellaneous hardware required to complete this metering scheme at Central Station		1	Lump sum	49,751.00	49,751.00
10	Online UPS :- 5 KVA range: External batteries with 30 Min. backup , rack for batteries.		1	No.	2,65,444.00	2,65,444.00
11	Laser Printer B/W, Laser A-4, Heavy Duty-minimum printing per month : 3500 per month		1	No.	1,03,592.00	1,03,592.00
G	**Supply Total**					**2,89,67,752.00**
H	**Installation**					
1	Installation of Meters (including Panel cutting)		415	Nos.	5,525.00	22,92,875
3	Installation of LT CTs - Per metering Point set of 3 CTs , thread through in existing power cable		92	Nos.	1,849.00	1,70,108.00
4	Installation & commissioning of OFC Network with all required switches and assoicated hardware, CTA - 6 Cable network for TCPIP Network, PCs , Switchs , Racks & connection with energy Meters.		1	Lumpsum	17,50,000.00	17,50,000.00
5	Data Center : Installation & commissioning of Server, UPS, Firewall , Software etc. and linking with all HT / LT remote end meters.		1	Lumpsum	7,15,000.00	7,15,000.00
6	Soft Soil Digging with Refilling with Brick and Sand		500	Per Mtrs.	150.00	75,000.00
7	Hard Soil Digging with Refilling with PCC		100	Mtr.	300.00	30,000.00
8	OTDR Testing		550	Mtr.	275.00	1,51,250.00
Installation Total (In Rs.)						**51,84,233.00**

Main Total Supply + Installation	**3,41,51,985.00**
Rupees three crore forty one lakh fifty one thousand nine hundred eighty five only	

NOTE:

Consideration of Lowest party L1= Part: 1 (Supply) + Part: 2 (Works).

Please mention amount of tax in Rupees not in percentage while filling up Online Price bid.

- **Part-I [Supply] -** Please quotes the rates by indicating GST, P & F, freight etc.
- **Part-II [Works] -** Please quote the rates by _____% exclusive of GST. GST will be paid by GSECL extra as per Govt. rules & regulations.

1. Payment will be given on the base of actual execution of work.
2. The rates are exclusive of applicable GST and same will be paid as per Govt. rules at prevailing rate extra if the same is claimed in bill/invoice.
3. GST No. & HSN Code must be required in Bill/Invoice.

Signature of contractor
With Rubber Stamp

Chief Engineer (Gen.)
GSECL: TPS: UKAI.