



VISAKH MARKETING INSTALLATION RESITEMENT
PROJECT LPG TERMINAL

Doc No:256324-500-PK-ELE-002

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TENDER NO: 9000057-HD-10147
Due Date 29-09-2009@ 1530 Hrs

TENDER FOR SUPPLY OF MAJOR
ELECTRICAL EQUIPMENT
AT & LPG TERMINAL,
VISHAKAPATNAM, A.P.



Hindustan Petroleum Corporation Ltd
Krishna Shree, 2nd Floor, Gandhi Nagar
1st Main Road - Adyar
Chennai 600 020



Mott MacDonald Consultants (India) Pvt.
Ltd.
Kothari House, CTS No. 185
Off Andheri - Kurla Road
Andheri (East)
Mumbai 400 059



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**TENDER FOR SUPPLY OF MAJOR
ELECTRICAL EQUIPMENT
AT & LPG TERMINAL,
VISHAKAPATNAM, A.P.**

Client	HINDUSTAN PETROLEUM CORPORATION LTD.
MMCI Project No.	256324

Group Disclaimer

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PART – 1 – COMMERCIAL

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1. Notice Inviting Tender

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PROJECT OWNER	EPM CONSULTANT
HINDUSTAN PETROLEUM CORPORATION LIMITED (HPCL) (A Government of India Enterprise) Office of the GM – Marketing Projects, # 44, “Krishna Sree Building”, 2 nd Floor, Gandhi Nagar, 1 st Main Road, Adyar, Chennai – 600 020. Phone: + 91-44-24455482/4	Mott MacDonald Consultants (I) Pvt Ltd., (MMCI) CTS No. 185, Off Andheri-Kurla Road, J B Nagar, Andheri (E), Mumbai 400 059, India Phone: + 91-22-30835000 (Board)

NOTICE INVITING TENDER

Electronic digitally signed & sealed (encrypted) e-tenders are invited under two bid system from eligible Indian Bidders as per details given below-

TENDER NO: 9000057-HD-10147

TENDER DOCUMENT FOR DESIGN, SUPPLY, TESTING, COMMISSIONING OF MAJOR ELECTRICAL EQUIPMENTS (33KV SWITCHGEAR, LV SWITCHGEAR, 110V D.C UPS SYSTEM), FOR LPG TERMINAL PROJECT, HPCL VISHAKAPATNAM, A.P

A1	On-line confirmation for bid participation by bidder	From 05-09-.2009 (1400 hours IST) to 29-09-2009 (1400 Hours IST)
A2	PRE-BID Meeting	14/09/2009 (14.00 hours IST) at Mott MacDonald Consultants (I) Pvt Ltd., (MMCI) , CTS No. 185, Off Andheri-Kurla Road, J B Nagar, Andheri (E), Mumbai 400 059, India. Phone: + 91-22-30835000 (Board)
A2	Tender submission due date & time	Up to 29-09-.2009 (15.00 Hours IST)
A3	Online Un priced Bid opening & time	From 15.30 Hours IST on 29-09-2009.
A4	Tender document fee	Rs. 5000 /- (Non - refundable)
A5	EMD	Rs.7,90,000 /- (Seven Lacs Ninety Thousand Rupees only.)

Bids are to be submitted online only at site <http://eproc.hpcl.co.in>. Bids received in any other form shall not be accepted. For viewing details including EMD, BID QUALIFICATION CRITERIA, LOCATIONS etc. Please visit our web site www.hindustanpetroleum.com and go to tender section by clicking the link “Tenders”. For on-line bidding, please visit website <http://eproc.hpcl.co.in>, click the link “Vendor Instruction Manual” and follow the procedure given therein. HPCL reserves the right to extend price/purchase preference as per prevailing guidelines of Government of India.

MANAGER PURCHASE

Signature and Seal of the Bidder



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1 Brief Scope of Work

The scope of work includes (but not limited to) Design, Manufacture, Supply, Loading & unloading, Delivery to site, Testing, Commissioning with its related Auxiliaries for Major Electrical Equipments (33KV SWITCHGEAR, LV SWITCHGEAR & 110V D.C UPS SYSTEM) at Visakh Marketing Installation Resitement Project LPG Terminal, HPCL.

2 Delivery Period

5 MONTHS from the date of issue of FOI/LOI for complete supply work as per SOQ.

3 Bid Qualification Criteria

Bidder shall meet the criteria specified under 3.1 & 3.2

3.1 FINANCIAL CRITERIA:

Bidder shall meet all the following criteria:

- 3.1.1 Annual financial turnover as per audited balance sheet and Profit & Loss account for the Financial Year ending March'08 shall be at least Rs. 9.00 Cr. in any one of the audited balance sheets and Profit & Loss accounts of the preceding three financial years.
- 3.1.2 The Net worth as per audited balance sheet and Profit & Loss account for Financial Year ending March'08 shall be positive. (This clause does not apply to PSUs).

3.2 Technical Criteria

Bidder shall meet all the following criteria:

- 3.2.1 The Bidder, during the previous seven years ending 31-08- 2009, shall have completed the Design, Manufacture and Supply of LV Switchgear and / or MV Switchgear and / or HV Switchgear (or combination of LV, MV & HV Switchgear). The completed job should have been executed and completed in this period(i.e. 7 years), in case job has commenced before 31-08-02 but completed within this period, then the value of the portion of the job completed within this period shall be calculated on a prorata basis, meeting either of the following:
- 3.2.2 Three works in India each not less than Rs. 1.45 Cr.
- OR
- 3.2.3 Two works in India each not less than Rs. 1.80 Cr.
- OR
- 3.2.4 One work in India not less than Rs. 2.90 Cr.

4.0 Bidder shall furnish documentary evidence i.e. copies of P.O. / Work orders/ relevant pages of contract, completion certificate or certified final bill from their clients, annual reports containing audited balance sheets and profit & loss accounts statement, in the first instance itself, in support of their fulfilling the qualification criteria. HPCL reserve the right to complete the evaluation based on the details furnished without seeking any additional information.

5.0 Parties who are affiliates of one another can decide which Affiliate will make a bid. Only one affiliate may submit a bid. Two or more affiliates are not permitted to make separate bids directly or indirectly. If 2 or more affiliates submit a bid, then any one or all of them are liable for disqualification. However up to 3 affiliates may make a joint bid as a consortium, and in which case the conditions applicable to a consortium shall apply to them. "Affiliate" of a Party shall mean any company or legal entity which:

- (a) Controls either directly or indirectly a Party, or
- (b) Which is controlled directly or indirectly by a Party; or
- (c) Is directly or indirectly controlled by a company, legal entity or partnership which directly



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or indirectly controls a Party. "Control" means actual control or ownership of at least a 50% voting or other controlling interest that gives the power to direct, or cause the direction of, the management and material, business decisions of the controlled entity.

6.0 Bids may be submitted by:

- (a) A single person/ entity (called sole bidder);
- (b) A newly formed incorporated joint venture (JV) which has not completed 3 financial years from the date of commencement of business.
- (c) A consortium (including an unincorporated JV) having a maximum of 3 (three) members
- (d) An Indian arm of a foreign company.

7.0 Fulfilment of Eligibility criteria and certain additional conditions in respect of each of the above 4 types of bidders are stated below, respectively:

- (a) The sole bidder (including an incorporated JV which has completed 3 financial years after date of commencement of business) shall fulfil each eligibility criteria.
- (b) In case the bidder is a newly formed and incorporated joint venture and which has not completed three financial years from the date of commencement of business, then either the said JV shall fulfil each eligibility criteria or any one constituent member/ promoter of such a JV shall fulfil each eligibility criteria. If the bid is received with the proposal that one constituent member/ promoter fulfils each eligibility criteria, then this member/promoter shall be clearly identified and he/it shall assume all obligations under the contract and provide such comfort letter/guarantees as may be required by HPCL. The guarantees shall cover inter alia the commitment of the member/ promoter to complete the entire work in all respects and in a timely fashion, being bound by all the obligations under the contract, an undertaking to provide all necessary technical and financial support to the JV to ensure completion of the contract when awarded, an undertaking not to withdraw from the JV till completion of the work, etc.
- (c) In case the bidder(s) is/are a consortium (including an unincorporated JV), then the following conditions shall apply:
 - 1) Each member in a consortium may only be a legal entity and not an individual person.
 - 2) The Bid shall specifically identify and describe each member of the consortium;
 - 3) The consortium member descriptions shall indicate what type of legal entity the member is and its jurisdiction of incorporation (or of establishment as a legal entity other than as a corporation) and provide evidence by a copy of the articles of incorporation (or equivalent documents);
 - 4) One participant member of the consortium shall be identified as the "Prime member" and contracting entity for the consortium;
 - 5) This prime member shall be solely responsible for all aspects of the Bid/ Proposal including the execution of all tasks and performance of all consortium obligations;
 - 6) The prime member shall fulfil each eligibility criteria;
 - 7) A commitment shall be given from each of the consortium members in the form of a letter signed by a duly authorized officer clearly identifying the role of the member in the Bid and the member's commitment to perform all relevant tasks and obligations in support of the Prime/lead member of the Consortium and a



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- commitment not to withdraw from the consortium;
- 8) No change shall be permitted in the number, nature or share holding pattern of the Consortium members after pre-qualification, without the prior written permission of the HPCL.
 - 9) No change in project plans, timetables or pricing will be permitted as a consequence of any withdrawal or failure to perform by a consortium member;
 - 10) No consortium member shall hold less than 25% stake in a consortium;
 - 11) Entities which are affiliates of one another are allowed to bid either as a sole bidder or as a consortium only;
 - 12) Any person or entity can bid either singly or as a member of only one consortium.
- (d) In case the bidder is an Indian arm (subsidiary, authorized agent, branch office or affiliate) of a foreign bidder, then the foreign bidder shall have to fulfil each eligibility criteria. If such foreign company desires that the contract be entered into with the Indian arm, then a proper back to back continuing (parent company) guarantee shall be provided by the foreign company clearly stating that in case of any failure of any supply or performance of the equipment, machinery, material or plant or completion of the work in all respects and as per the warranties/ guarantees that may have been given, then the foreign company shall assume all obligations under the contract. Towards this purpose, it shall provide such comfort letter/guarantees as may be required by HPCL. The guarantees shall cover inter alia the commitment of the foreign company to complete the entire work in all respects and in a timely fashion, being bound by all the obligations under the contract, an undertaking to provide all necessary technical and financial support to the Indian arm or to render the same themselves so as to ensure completion of the contract when awarded, an undertaking not to withdraw from the contract till completion of the work, etc.



8 Information/Documents required along with Application:

- a) Title, style and postal address of the firm.
- b) Communication particulars including telephone numbers, fax numbers and e-mail address.
- c) Integrity Pact: Duly Signed and Witnessed Hard Copy of the Integrity Pact (as per the format enclosed) shall be submitted in original along with the above documents. Failure to sign the Integrity Pact shall lead to outright rejection of bid.
- d) Notarized copy or original Purchase/work Order / /certified bills from client/owner / project consultants along with their completion certificate. The Purchase/work Order and completion certificate should mention the details of jobs carried out by the applicant so as to enable us to identify whether the applicant(s) meets the technical criteria stipulated above or not.
- f) Tender Fee of Rs. 5,000/- (Non-Refundable) and EMD shall also be submitted along with the above (**Bidders registered with NSIC are exempted**).. Non-submission of EMD and Tender Fee shall lead to rejection of bid.

All the above documents (Tender Fee, EMD, Integrity Pact & BQC) shall be submitted in a sealed envelope superscribed as “EMD / BQC Documents / Bid Documents” with Name of the Job, Tender No, due date, at the following address so as to reach before the Due Date of the Tender:

- e) All the above documents shall be submitted in a sealed envelope superscribed as “Bid Documents” with Name of the Job, Tender No, due date, at the following address so as to reach before the Due Date of the Tender:

**Procurement Department
Mott MacDonald Consultants (I) Pvt Ltd., (MMCI)**

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CTS No. 185, Off Andheri-Kurla Road, J B Nagar, Andheri (E),
Mumbai 400 059, India

Phone: + 91-22-30835000 (Board)

9 GENERAL INFORMATION

EMD shall be accepted in the form of demand draft, pay order, banker's cheque (in favour of Hindustan Petroleum Corporation Ltd, payable at Chennai) or Bank Guarantee issued by any scheduled bank (other than cooperative bank). Amount of EMD is mentioned in the tender. In case EMD is submitted in form of Bank Guarantee, it should be made on non-judicial stamp paper of appropriate value (denomination) and should be valid for six months from due date / extended due date of the tender. Cheque / FDR or EMD in any other form shall be treated as offer without EMD and shall not be acceptable. Public sector undertaking (Declaration required) and Units registered with NSIC (Copy of valid registration up to specified volumes) are exempted from submission of EMD.

EMD (original instrument: DD/Pay order/ Banker's Cheque or Bank Guarantee) should be kept in separate envelope (superscribed with tender number, job & due date) and should be deposited by tender due date / time, in the tender box provided in the office at:

Procurement Department, Mott MacDonald Consultants (I) Pvt Ltd., CTS No. 185, Off Andheri-Kurla Road, J B Nagar, Andheri (E), Mumbai 400 059, India Phone: + 91-22-30835000 (Board).

Public sector undertaking and Units registered with NSIC may also send the hard copy of EMD exemption document by post to Procurement Department, Mott MacDonald Consultants (I) Pvt Ltd., CTS No. 185, Off Andheri-Kurla Road, J B Nagar, Andheri (E), Mumbai 400 059, India Phone: + 91-22-30835000 (Board).

HPCL / MMCI shall not be responsible for any postal delays or non-receipt of EMD by tender due date / time, reasons whatsoever.

While submitting the bid on-line, bidders would be required to upload the scanned copy of EMD instrument (DD / pay order / banker's cheque or bank guarantee) or EMD exemption document (self declaration in case of Public sector undertaking or copy of valid registration certificate in case of units registered with NSIC) at the place provided for the same.

Offer received without requisite EMD as explained above shall be rejected.

- i) Bidder can view the tender Document at HPCL website <http://www.hindustanpetroleum.com> however bidders are not allowed to quote on the basis of such downloaded document from website and such offers shall not be considered.
- ii) Bid document is non-transferable.
- iii) For submitting the bid on-line it would be mandatory for bidders to obtain digital certificate (which will enable data encryption as well as digital signing). For information regarding digital certificate, bidders may visit <http://www.cca.gov.in>. For submitting the bid online, bidders are advised to follow the step by step procedure given under the link "Vendor Instruction Manual" at website <http://eproc.hpcl.co.in> . In case bidders are unable to access the site <http://eproc.hpcl.co.in> they may contact at Phone: 044-24455482/4 at Chennai on all working days during office hours.

The on-line bidding would comprise broadly following steps –

- Enrolment by vendor at <http://eproc.hpcl.co.in> (can be done without digital certificate) by clicking the link "Supplier Registration".
- The system generated challenge phrase will be sent to vendor at e-mail address provided by him during enrolment.
- The vendor would be required to login at <http://eproc.hpcl.co.in> with this challenge phrase along with



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- his user id & password. The vendor has to complete 2 page registration forms.
- As soon as vendor fills two page registration forms, he should put a request letter on letterhead (giving tender number) to HPCL for approving his enrolment. The request may be sent through fax at , Fax: 044 24455483/ email to capadmini@hpcl.co.in
 - After enrolment, vendor would be required to login and register his digital certificate (to be obtained by vendor) at website as mentioned above.
 - After registering digital certificate vendor can participate in the limited tender.
 - The vendors who are already enrolled at website: <http://eproc.hpcl.co.in> need not to enrol again and vendors who have already got valid digital certificate (enabling data encryption as well as digital signing) are not required to procure another digital certificate.
 - **Kindly note that MMCI has arranged E-procurement training on Dtd:14-09-2009 at 14.30 Hrs upto 16.00 Hrs, at following address. Bidders are requested to attend the e-procurement training and make themselves familiarized with E-procurement system to be followed for this tender uploading:**



Procurement Department, Mott MacDonald Consultants (I) Pvt Ltd., CTS No. 185, Off Andheri-Kurla Road, J B Nagar, Andheri (E), Mumbai 400 059, India
Phone: + 91-22-30835000 (Board).

- iv) HPCL will not be responsible for the cost incurred in preparation and submission of bids including the cost of digital certificate, regardless of the conduct of outcome of the bidding process.
- v) HPCL shall not be responsible for any expenses incurred by bidders in connection with the preparation & submission of their bids, site visit and other expenses incurred during bidding process.
- vi) Fax/e-mail bids shall not be accepted.
- vii) HPCL reserves the right to accept or reject any one or all the tenders without assigning any reason.
- viii) The evaluation of this tender will be overall L1 basis (i.e. All Items + Trolley / Dummy Panel + it's 2 years spares + AMC without spares for 5 years). Order would be placed on single Vendor and the same will not be split.



Please note that Purchase order for AMC for 1st year will be placed at the expiry of manufacturer warranty and Purchase order for AMC for each subsequent year shall be placed on expiry of previous years' AMC.

- ix) HPCL shall not be bound to accept the lowest tender and reserves right to accept any or more tenders in part. Decision of HPCL in this connection shall be final.
- x) Hindustan Petroleum Corporation Ltd (HPCL) has developed the "Grievance Redressal Mechanism" to deal with references / grievances if any that is received from parties who participated/ intends to participate in the Corporation Tenders. The details of the same are available on this website.

Completed Tenders in all respect should be submitted on-line at website <http://eproc.hpcl.co.in> by the tender due date/ time. Unpriced (Technical) bids shall be opened on-line and participating bidders can view / witness the same on-line by logging in at website <http://eproc.hpcl.co.in>. Bidders would not be allowed to submit their bid after stipulated tender due date and time. For details, please refer "INSTRUCTION TO BIDDERS".

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HPCL will follow the purchase preference and price preference policy as per prevalent guidelines of Govt. of India.

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E-TENDER TERMS & CONDITIONS

- 1) This is only a Tender Enquiry and not an order.
- 2) The tender should be submitted online at website <http://eproc.hpcl.co.in> only, by the due date and time, as specified in the tender. Late / delayed tenders submitted on line after the due date and time, for whatsoever reasons will not be considered. The Server Date & Time as appearing on the HPCL website (<http://eproc.hpcl.co.in>) shall only be considered for the cut-off date and time for receipt of tenders. Offers sent through post, telegram, fax, telex, e-mail, courier will not be considered.
- 3) Partially completed / incomplete tenders shall not be considered.
- 4) All communication regarding the tender including queries, if any, and submission of offers shall be done online within the e-Procurement system at website <http://eproc.hpcl.co.in>
- 5) Two Bid System
Bidders are required to submit offer in two parts, namely “Technical and Un priced Commercial part” & “Priced” **Priced bid shall be submitted only on E procurement site.**
Price Bid & Un-priced Bid should be same, only price part should be hidden in the Un-priced Bid. Priced bid shall be provided only on e-procurement site of HPCL.
- 6) Validity: Quoted prices shall be valid for a period of 120days from the due date / extended due date of tender submission.
- 7) Bidders shall be required to arrange all resources, including Digital IDs and Internet Connections at their own cost, for participating in online tenders at HPCL e-Procurement site.
- 8) HPCL shall not be responsible for any delays reasons whatsoever in receiving as well as submitting offers, including connectivity issues. HPCL shall not be responsible for any postal or other delays in submitting EMD / tender cost wherever applicable.
- 9) Request for extension of tender submission due date, if any, received from bidders within 48 hours of tender submission due date / time, shall not be considered. However, HPCL reserves the right to extend the due date / time.
- 10) **Clarifications sought/ queries received from bidders /vendors/parties on tender, within last seven days of bid due date, will not be entertained by HPCL. Please refer query end date / time in tender calendar after which no query posted by bidder shall be considered. However HPCL reserves the right to respond the queries after cut off date / time mentioned in tender calendar.**
- 11) **Please note that queries related to scope of work, tender specifications, terms & conditions etc should be submitted on –line only (by logging in at <http://eproc.hpcl.co.in>) by the query end date / time specified in the tender consolidated view / NIT view/ tender calendar.**
- 12) Tender opening (unpriced bid as well as priced bid) will be done online at the time and dates specified in the tender or amended later in the e procurement portal. Vendors who have responded to the tender are requested to login at the specified date and time at HPCL e-procurement website (<http://eproc.hpcl.co.in>) for witnessing the tender opening (unpriced bid as well as priced bid in case of technically accepted vendors).
Bidders are expected to quote their most competitive rates in the Price Bid. As a normal practice Price bids are opened and evaluated. However, HPCL reserves the right to conduct reverse auction bearing on market conditions, number of Vendors’ participation and established procedures of HPCL.
- 13) HPCL reserves the right to accept any tender in whole or in part or reject any or all tenders without assigning any reason. HPCL reserves right to accept any or more tenders in part.

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Decision of HPCL in this regard shall be final and binding on the bidder.

14) HPCL shall follow Purchase Preference / Price Preference as per prevailing guidelines of Government of India.

16) Grievance Redressal Mechanism:

Hindustan Petroleum Corporation Limited (HPCL) has developed a “Grievance Redressal Mechanism” to deal with references / grievances if any that are received from parties who participated / intend to participate in the Corporation Tenders. The details of the same are available on our website www.hindustanpetroleum.com.

Complaints if any under Grievance Redressal Cell may please be sent to

Ms. C.A.Padmini
Manager - Purchase
Hindustan Petroleum Corporation Ltd.
Krishna Shree, 2nd Floor, Gandhi Nagar,
1st Main Road – Adyar, Chennai 600 020
Ph: 044 – 24455482, Fax no 044 – 24455483
Email: capadmini@hpcl.co.in

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1.1 Instructions to Bidders



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1 Project Description/Site Information

HPCL is planning to construct a Greenfield LPG Terminal, at Visakhapatnam.

The details of the work are attached in Scope of Work to this Tender.

Mott Macdonald Consultants (India) Pvt. Ltd has been awarded the EPCM (Engineering Procurement and Construction Management) consultancy job for these Oil Terminal facilities of HPCL. MMCI as a consultant will be handling the Project execution.

2 Site Visit

2.1 The bidder is advised to visit and examine the sites of works and its surrounding and obtain for himself on his own responsibility all information that may be necessary for preparing of the bid and entering into the contract. The cost of visiting the sites shall be at bidder's own expenses. No extra claim on account of non-familiarity of site conditions shall be entertained during execution of works.

2.2 The bidder and any of his personnel or agents will be granted permission by the HPCL/MMCI to enter upon his premises and lands for the purpose of such inspection, but only upon the explicit condition that the bidder, his personnel or agents will release and indemnify the HPCL / MMCI and his personnel and agents from and against all liability in respect thereof and will be responsible for personnel injury (whether fatal or otherwise), loss of or damage and expenses incurred as a result hereof.

3 Information Required With Bids

The following details are required to be submitted along with offer:

- A) List of Exception & Deviation, if any, as per Form PF-2. In case of no deviation the Bidder shall furnish Form PF-2 duly signed & stamped duly declaring NIL DEVIATION.
- B) Work completion Schedule in the form of PERT/Bar chart.
- 3.1 Tenderers are required to submit offer in two parts namely 'Unpriced' & 'Priced'. Each part shall be submitted in separate envelope marked 'Unpriced' / 'Priced' as applicable on e-procurement web site of HPCL. **Priced bid shall be submitted only on e-procurement site and hard copy shall not be sent for priced bid.** "Unpriced Bid" (EMD and other bid documents as required, duly signed and sealed) is to be kept in envelope and the same is to be submitted to us by the due date.

Tender documents to be returned/ forwarded (duly signed by Tenderer) along with the tender shall be as follows:

<u>No. of Copies to be submitted along with Document</u>	<u>Unpriced Bid</u>	<u>Priced Bid</u>
1. EMD as per NIT	1	NIL
2. Tender Fee	1	NIL
3. Integrity Pact	1	NIL
4. Power of attorney for signing Tender	1	NIL

Parties are advised to submit all the above documents in a folder with proper Index etc.

4. Validity

Quoted prices shall be valid for a period of 120days from the due date / extended due date for placement of order.



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5. When the person signing the tender is not the sole proprietor, the necessary Power of Attorney authorising the person to act on behalf of the Proprietor or Organisation should be produced /attached with the tender in the unpriced bid.
6. The tenderers should study all the documents / conditions etc. in this tender document carefully before submitting their offers. If there are any doubts, they should get clarifications from MMCI, Mumbai or HPCL, Chennai in writing but this shall not be a justification for submission of late tenders or extension of due date of the tender.
7. All entries and rates in the tender are to be made only on e-proc website of HPCL.
8. As far as possible, the tenderers should endeavour not to stipulate any counter terms/conditions or modifications of tender clauses and should quote strictly as per tender conditions. This will assist in proper evaluation of each offer. However, should there be any specific comments in respect of any of the clauses; the same may be highlighted in a separate deviation schedule in the unpriced bid.
9. HPCL reserves the right to reject offers not meeting its Technical requirements and commercial conditions.
10. HPCL shall not be bound to accept the lowest tender and reserves right to accept any or more tenders in part. Decision of HPCL in this connection shall be final.
11. HPCL reserves the right to accept any tender in whole or in part or reject any or all tenders without assigning any reason.
12. The third party inspection agency (TPIA) for the entire work will be arranged by MMCI. Inspection charges for TPIA shall be borne by MMCI.
13. Vendor shall submit tentative detailed Quality assurance plan (QAP) for stage wise inspection along with their **technical / unpriced bid**. The detailed QAP will be drawn up after finalisation of the order along with the TPIA. **Vendor to incorporate the comments and observations made by MMCI/ TPIA and execute the same at no EXTRA COST to HPCL.**

14 Bid Clarifications/Amendments By HPCL

- 14.1 HPCL / MMCI may issue clarifications / amendments in the form of addendum / corrigendum during the bidding period and may also issue amendments subsequent to receiving the bids. For the addendum / corrigendum issued during the bidding period, bidders shall confirm the inclusion of addendum / corrigendum in their bid. Bidders shall follow the instructions issued along with addendum / corrigendum.
- 14.2 Bidders shall examine the bidding documents thoroughly and submit to HPCL / MMCI any apparent conflict, discrepancy or error. HPCL / MMCI shall issue appropriate clarifications or amendments, if required. Any failure by bidder to comply with the aforesaid shall not excuse the bidder from performing the services in accordance with the contract if subsequently awarded.

For any queries / clarifications regarding the tender, the parties may contact MMCI first, including copy to HPCL as per following sequence:



MMCI

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1. Mr Amit Mahabal – Project Manager, Ph: 022 30835108 / 9833931031 – For all technical queries. Email: amit.mahabal@mottmac-india.com
2. Mr. Umesh Churi – Manager Procurement, Ph: 022 30835289 / 9320382447- For other than technical queries. Email: umesh.churi@mottmac-india.com
3. Mr. Prashant Gade – Procurement, Ph: 022 30835286 - For other than technical queries. Email: Prashantt.Gade-mm@mottmac-india.com

HPCL

1. Ms. C A Padmini, Manager - Purchase, Ph: 044 – 24455482, 9444955022- For other than technical queries. Email: capadmini@hpcl.co.in
2. Mr. Debasish Goswami, Manager–Project, Ph: 0891 - 2700486 / 9848168551 – For all technical queries. Email: dgoswami@hpcl.co.in
3. Mr. N.V.S.S. Kameswar Rao, Chief Manager- Visakh Resitement Project, Ph: 0891-2700846 / 9490744312 – Overall Project related . Email: nvssk rao@hpcl.co.in

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1.1.1 Local Site Conditions



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PROJECT DESCRIPTION : HPCL LPG Terminal				LOCATION : Visakhapatnam, India			
LOCAL CONDITIONS:							
ELEVATION : 3.0 m ABOVE MEAN SEA LEVEL			CLIMATE : Highly Corrosive				
DESIGN OF COOLING TOWER: WBT 29.5 °C			WIND DIRECTION: South-West to North-East				
DESIGN OF HVAC			WIND VELOCITY : Basic wind speed 50 m/sec AT 10 m EL (IS 875 Part(3))				
SUMMER : 37 °C DBT 26.5 °C WBT 50 % RH			SEISMIC DESIGN FACTOR : Zone II (IS 1893 Part 1 : 2002)				
WINTER : 15.4 °C DBT 14.9 °C WBT 65 % RH			TOPOGRAPHY FACTOR, K3 : 1.0				
MONSOON : 33.8 °C DBT 29.2 °C WBT 80 % RH			RAINFALL MAX / MIN (MM / DA): Max * mm & Design * mm				
DESIGN RAINFALL INTENSITY: 75mm/hr to 100 mm/hr							
MIN. DESIGN WIND LOAD FOR STRUCTURES: As Per IS-875 part III							
Height (M)	Wind Pressure						
0-10	146.85 Kg/m ²						
10-20	168.58 Kg/m ²						
30-40	185.02 Kg/m ²						
40-50	202.22 Kg/m ²						
DRY BULB TEMPERATURE:							
	Outdoor		Indoor		Control Room		
	Temp. (°C)	RH	Temp. (°C)	RH	Temp. (°C)	RH	
Site Rated (Max/Min)	40.7	50%	*	*	25	55%	
Max./Min. (Mech. Design)	45	50%	NA	NA	50	55	
Design Wet Bulb	29.2	*	NA	NA	NA	NA	
TROPICALISATION REQUIRED: - NO							
WINTERIZATION REQUIRED : - NO							
UTILITY BATTERY LIMITS :							
ELECTRICIAL							
	UNITS	PRIMARY DISTBN. (HV)	MV(415V) VOLTAGE	DG FED EMERGENCY POWER	AC UPS	DC SYSTEM	
VOLTAGE ,	kV	33kV ±10%	415 V ±10%	415 V±10%	230V±1%	110V DC	
FREQUENCY,	Hz	50 ±5%	50±5%	50±5%	50±1%	-	
COMBINED VOLTAGE FREQUENCY	%	±10	±10	±10	-	-	
PHASE		3 Ph	3 Ph	3 Ph	1 Ph	-	
DESIGN TEMP FOR ELEC. EQPT.	°C	50					
LIQUIDS							
	UNITS	COOLING WATER		CHILLED WATER	CHILLED BRINE	HOT WATER	HOT OIL
		TG	UTILITY	↑	↑	↑	↑
SUPPLY PRESSURE	kg/cm ² g	↑	↑				
DESIGN PRESSURE	kg/cm ² g	↑	↑				
SUPPLY TEMPERATURE	°C						
DESIGN TEMPERATURE	°C	NA	NA	NA	NA	NA	NA
TEMPERATURE RISE / DROP	°C						
PRESSURE DROP MAXIMUM	kg/cm ²	↓	↓	↓	↓	↓	↓
FOULING FACTOR	m ² h ⁰ C/kcal	↓	↓	↓	↓	↓	↓

Signature and Seal of the Bidder



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GASES									
	UNITS	PLANT AIR	INSTR. AIR	NITROGEN	STEAM				
					HP	MP	LP	LPE	LLP
PRESSURE : NORMAL	kg/cm ² g	17	7 – 7.7	↑	↑	NA	NA	↑	↑
: MAXIMUM	kg/cm ² g	*	*						
TEMPERATURE : NORMAL	⁰ C	Ambient	Ambient	NA	NA	NA	NA	NA	NA
: DESIGN	⁰ C	50	50						
DESIGN PRESSURE	kg/cm ² g	*	*						
				↓	↓			↓	↓
REMARKS: 1) * Indicates data required from HPCL									
Note:-									
Rev	Description	Originator	Checker	Approver	Date				
A	Issued for Client comments / Approval				24 Feb 2009				

1.2 Proposal Forms



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NAME OF WORK BIDDING

DOCUMENT NO.

EXCEPTION AND DEVIATIONS STATEMENT

Bidder shall list all the deviations in the following given format only. Bidder may stipulate exceptions and deviations to Bidding Document, if considered unavoidable as per the following format:

S.NO.	PAGE NO. OF TENDER DOCUMENT	CLAUSE NO.	SUBJECT	DEVIATIONS



Any exceptions/deviations brought out elsewhere in the Bid shall not be construed as valid.

SIGNATURE OF BIDDER _____

NAME OF BIDDER _____

Other documents to be submitted:

1. All required documentation as per NIT requirements to be submitted.
2. Work completion schedule in the form of PERT/BAR chart to be submitted.

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1.3 Agreed Terms & Conditions (Attached as Annexure – 1)

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1.4 Special Conditions of Supply

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SPECIAL TERMS & CONDITIONS

1. PAYMENT TERMS

1.1 SUPPLY

90% of the bill amount will be paid in 7 days after acceptance of material at site & receipt of Commercial Invoice, Excise Invoice with all test certificates/ Inspection release note. Original MTC, Testing & Inspections reports needs to be submitted along with supply, these documents are mandatory to accept the material at site.

Balance 10% of the bill amount for each panel will be paid within 15 Days after commissioning of the concerned panel.

However 10% of all the above payments shall be withheld and shall be paid on acceptance of the Major Electrical Equipments at site against submission of Performance Bank Guarantee as per format attached in Agreed Terms & Conditions.

Quoted Prices shall be firm & fixed over the entire period of the execution of this order. All taxes, duties, Central sales tax, Octroi, Packing & Forwarding Charges, Freight and insurance including Transit-cum-storage -cum-erection/Third party insurance and all other taxes and duties shall be quoted separately.


STATUTORY LEVIES

1. The Supplier accepts full and exclusive liability for the payment of any and all taxes, duties, Octroi, rates, cess, levies and statutory payments payable under all or any of the statutes etc.

Variations of taxes and duties arising out of the amendments to the Central / State enactments, in respect of sale of goods / services covered under this bid shall be to HPCL's account, so long as :

- They relate to the period after the opening of the price bid, but before the contracted completion period (excluding permitted extensions due to delay on account of the contractors, if any) or the actual completion period, whichever is earlier; and

- The Supplier furnishes documentary evidence of incurrence of such variations, in addition to the invoices/documents for claiming Cenvat /Input Tax credit, wherever applicable. All contributions and taxes for unemployment compensation, insurance and old age pensions or Annuities now or hereafter imposed by Central or State Governmental authorities which are imposed with respect to or covered by the wages, salaries or other compensations paid to the persons employed by the Supplier and the Supplier shall be responsible for the compliance with all obligations and restrictions imposed by the Labour Law or any other law affecting employer-employee relationship and the Supplier further agrees to comply and to secure the compliance of all sub-contractors with all applicable Central, State, Municipal and local laws, and regulations and requirements of any Central, State or Local Government agency or authority. Supplier further agrees to defend, indemnify and hold harmless from any liability or penalty which may be imposed by the Central, State or Local authorities by reason of any violation by Supplier or sub-contractor of such laws, regulations or requirements and also from all claims, suits or proceedings that may be brought against the Owner arising under, growing out of, or by reasons of the work provided for by this contract by third parties, or by Central or State Government authority or any administrative sub-division thereof. The Supplier further agrees that in case any such demand is raised against the Owner, and Owner has no way but to pay and pays/makes payment of the same, the Owner shall have the right to deduct the same from the amounts due and payable to the Supplier. The Supplier shall not raise any demand or dispute in

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respect of the same but may have recourse to recover/receive from the concerned authorities on the basis of the Certificate of the Owner issued in that behalf.

2. The rates quoted should be inclusive of all rates, cess, taxes and sales tax on works contracts wherever applicable. However, wherever the sales tax on works contract is applicable and is to be deducted at source, the same will be deducted from the bills of the Contractor and paid to the concerned authorities. The proof of such payments of sales tax on works contract will be furnished to the contractor.

3. Income tax will be deducted at source as per rules at prevailing rates, unless certificate, if any, for deduction at lesser rate or nil deduction is submitted by the Contractor from appropriate authority.

4. The Supplier shall provide accurate particulars of PAN number as required, to enable issuance of TDS (Tax Deduction at Source) certificate.

5. Necessary Service tax shall be paid extra, as applicable.

1.2 For the Annual Maintenance Contract without spares– AMC (for 5 years)

- (a) 100% of annual charges in four (4) equal instalments towards maintenance shall be paid within 15 days from the date of receipt of Bills to HPCL, at the end of each quarter against submission of pre-receipted invoice and necessary certification by HPCL.

2.0 INSURANCE :

- 2.1 Owner will arrange Comprehensive Insurance policy covering Inland Transit Insurance (in India).

3 OTHER SPECIAL CONDITIONS OF CONTRACT

- 3.1 Bidders shall give the Undertaking that they are not on the Holiday list of HPCL. Any bidder found on Holiday list of HPCL will be rejected.


4 COMPENSATION FOR DELAY (LIQUIDATED DAMAGE CLAUSE-LD)

LD @ 0.5% per week subject to 5% of the value of the **undelivered goods** shall be levied for the period beyond the scheduled delivery period. Please refer clause 15 of "Agreed Terms & Conditions".

5. OTHER GENERAL REQUIREMENTS

5.1 Manufacturing & Supply of 33KV SWITCHGEAR, LV SWITCHGEAR & 110V D.C UPS SYSTEM:

- a) The Vendor shall manufacture & supply the 33KV SWITCHGEAR, LV SWITCHGEAR & 110V D.C UPS SYSTEM strictly in accordance with technical specifications mentioned in the tender documents and as per directions in the Purchase Order. Vendor shall submit the detailed GA Drawings, QA Plan to MMCI / MMCI approved TPIA for approval. The Vendor shall not undertake on their own any changes in the Specifications mentioned in the Tender documents and Purchase Order.
- d) Vendor shall be required to submit regular fortnightly progress reports and Inspection reports of their work to MMCI.

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5.2 Inspection By TPIA / MMCI / HPCL:

MMCI / MMCI's appointed TPIA shall inspect the entire work of the ordered Major Electrical equipments for which all co-operation / facilities will be extended by the Vendor to authorised representative of TPIA / MMCI.

5.3 Deviation in Design / Specifications:

For deviations, if any, proposed by the Vendor in Specifications / Drawings, the Vendor should get them approved in writing from the appointed TPIA and MMCI / HPCL prior to the manufacturing.

Any financial benefit accruing to the Vendor due to such deviations shall be passed on to HPCL and the decision of HPCL shall be final.

5.4 SECURITY DEPOSIT:

The tenderer, with whom the contract is decided to be entered into and intimation is so given will have to make a security deposit of one percent (1%) of the total contract value in the form of account payee crossed demand draft drawn in favour of the Owner, within 15 days from the date of intimation of acceptance of their tender, failing which the Owner reserves the right to cancel the Contract and forfeit the EMD.

1% of PO/Contract value as Security deposit will be acceptable in the form of Demand draft upto Rs. 50,000/- and in the form of Demand draft / Bank guarantee beyond Rs. 50,000/-.

Composite Performance Bank Guarantee (CPBG) for 10% of PO value towards Performance Bank Guarantee inclusive of Security Deposit shall be accepted (in lieu of deduction of retention money); such CPBG shall be valid upto a period of 3 months beyond the expiry of defect liability period. **Bidders registered with NSIC are exempted.**

Demand Draft should be drawn on Scheduled Banks, other than co-operative bank.

Security Deposit cum Performance Guarantee:

The successful tenderer other than Central PSU / NSIC registered manufacturers shall within 15 days of placement of order deposit with Corporation Security Deposit of 10% of order value by way of crossed A/c Payee Demand Draft drawn on any **Nationalised / Scheduled Banks other than Co-operative Banks** in favour of M/s. Hindustan Petroleum Corporation Ltd., payable at Chennai or in the form of an irrevocable Bank Guarantee on any **Nationalised / Scheduled Banks other than Co-operative Banks** in the prescribed format provided in the tender.

The Security Deposit cum Performance Guarantee amount will be refunded only after the expiry of the Guarantee period of the supplied material as per SOQ by the party. No interest is payable by the Corporation on the Security Deposit so collected. The Corporation shall be entitled to deduct from the deposit any loss or damage which the Corporation may be put to by reason of any act or defective material, LD or any other liabilities or default recoverable by the Corporation from the successful tenderer and to call upon the successful tenderer to maintain the deposit at the original limit by making further deposits.



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**1.5 Bank Details for ECS (To Be Submitted By
Successful Bidders Only)**



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To,
Hindustan Petroleum Corporation Limited
Office of the GM – Marketing Projects,
44, “Krishna Sree Building”, 2nd Floor, Gandhi Nagar, 1st Main Road,
Adyar, Chennai – 600 020.

Dear Sirs,

The following is a confirmation/ updation of my bank account details and I hereby affirm my / our choice to opt for payment of amounts due to me under various contracts through electronic mode. I understand that Hindustan Petroleum Corp. Ltd. also reserves the right to send the payments due to me by a cheque / Demand Draft / electronic mode or through a banker.

- A. Supplier / Contractor Details
1. Supplier / Contractor Name :
 2. Supplier / Contractor Code :
 3. Address :
 4. Controlling Office Name / SBU :
 5. P.A.N. No. (Xerox copy to be enclosed) :
 6. E-mail ID :
- B. Particulars of Bank Account :
1. Bank Name :
 2. Branch Name / Branch code :
 3. Branch Address (incl Pin code) :
 4. 9 digit MICR No. of Bank and Branch :
 5. Account Type (Savings/cash credit/current) :
 6. Account Number (as appearing on cheque book) :
 7. IFSC Code of the Branch (For RTGS) :
 8. IFSC Code of the Branch (for NEFT) :

I here by confirm that the particulars given above are correct and complete and also undertake to promptly advise any changes to the above details to HPCL. If the transaction is delayed or not affected for reasons of incomplete or incorrect information or banking delays, I shall not hold Hindustan Petroleum Corporation Limited responsible. I also agree for printing of the cheque or DD if the payment is effected by cheque /DD.

Name (in Capitals) of supplier / contractor

Authorised Signatory

Date: _____ Official Rubber Stamp

BANK SIGNATURE WITH SEAL

Note:-

1. Bank detail to be confirmed by the bankers. Such confirmation shall be duly signed & stamped by bankers.
2. Please enclose cancelled / photocopy of a cheque.

1.6 Time Schedule



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DESCRIPTION OF WORK:

LOCATION	DELIVERY PERIOD FROM DATE OF ISSUE OF FOI / LOI
HPCL, LPG TERMINAL BEHIND NSRDC, SINDIA JUNCTION (BEHIND ESI HOSPITAL), VISAKHAPATNAM – 530 005	DESIGN, SUPPLY, FABRICATION, TESTING & COMMISSIONING OF MAJOR ELECTRICAL EQUIPMENTS (33KV SWITCHGEAR, LV SWITCHGEAR, 110V D.C UPS SYSTEM) , COMPLETE SCOPE AS MENTIONED IN SCOPE OF WORK – 5 MONTHS RECEIPT OF MATERIAL AT SITE SHALL BE CONSIDERED AS THE DATE OF DELIVERY

NOTE:

- 1) Time for completion shall be reckoned from the date of issue of Fax / Letter of Intent by HPCL.
- 2) Time indicated is for completing all the Supply in all respects as per Exhibits, Specifications, Codes, Drawings and Instructions of Engineering In-Charge
- 3) Supervision for Installation & Start-up Commissioning : The representative of the successful bidder shall be present at site within 7 days from the date of Intimation by MMCI / HPCL.

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PART – 2 - TECHNICAL



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Specification for Major Electrical Equipment



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1 Introduction

This specification covers the minimum requirements for the Design, Engineering, Supply & Material procurement, Fabrication, Assembly, Painting, Inspection at manufacturers works, Supply & Delivery to site, Testing and Commissioning of Major Electrical Equipment (33kV Switchgear, LV Switchgears, 110V D.C. UPS System) for “LPG Terminal Project” of M/s. HPCL located at Visakhapatnam, A.P., India.

Following are the definitions:

Owner/Purchaser	M/s. Hindustan Petroleum Corporation Ltd.
Consultant	Mott MacDonald Consultants (India) Pvt. Ltd.[MMCI]
Vendor	Supplier of 33kV Switchgear, LV Switchgears & 110V D.C. System
Shall	This is to be understood as mandatory in relation to the requirements of this document.
Should	This is to be understood as a strong recommendation to comply with the requirements of this document.
Equipment	This is to be understood as vendor supplied equipment with all accessories.

The Vendor shall ensure that the design complies with the requirements of this specification and standards. The Guaranteed Technical Particulars enclosed with related Equipment specification, which forms part of this specification, shall be completed by the Vendor. The Vendor shall highlight any non-compliance at the offer stage in the Table of Compliance, Appendix B. Not providing completed compliance table and Guaranteed Technical Particulars can cause rejection of the offer. Failure to clearly identify specific deviations shall be assumed by the Purchaser to be total compliance with the specification.

This specification does not relieve the Vendor from final guarantee as to materials, apparatus, workmanship and performance of the equipment supplied.

2 Location and Environmental Conditions

2.1 Plant Location

LPG Terminal Project is located at Visakhapatnam, A.P, India. 33kV & L.V. switchgears, 110V D.C. UPS & DCDB shall be located in Main Substation within the Plant Complex.

2.2 Environmental Conditions

Refer Part -1 – Commercial - Section 1.1.1

2.3 Electrical System Data

Refer Appendix: A

3 Scope of Supply

The following Equipment shall be supplied, in accordance with this specification; standards stated herein & enclosed appendices:



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3.1 Electrical Equipment;

Sr.No.	Item Description	Unit	Quantity	Remarks
1.	Indoor type 33kV Switchgear panel with supporting base frame as per the following details, attached SOQ & 33kV Single Line Diagram (HPCL, 33kV Switchgear) Rated voltage : 33 kV Highest system voltage : 36 kV Rated Bus-bar current : 630A Short time withstand current : 25kA for 3 Sec. One Breaker Panel (Refer Annexure -4 ,Appendix F)	Set	1	
2.	Earthing Trolley	No.	1	
3.	415V PMCC for Plant as per following details & attached SOQ & SLD including horizontal, vertical busbar arrangement and cable alleys: Rated Voltage : 415V Highest System Voltage : 433V Rated Busbar Current : 3200A Short Circuit Withstand Current : 50kA for 1 sec. (Refer Annexure -5 ,Appendix F)	Set	1	
4.	415V T/T & T/W Filling MCC as per following details & attached SOQ & SLD: Rated Voltage : 415V Highest System Voltage : 433V Rated Busbar Current : 800A Short Circuit Withstand Current : 50kA for 1 sec (Refer Annexure -5 ,Appendix F)	Set	1	
5.	415V Bottling Plant MCC as per following details & attached SOQ & SLD: Rated Voltage : 415V Highest System Voltage : 433V Rated Busbar Current : 800A Short Circuit Withstand Current : 50kA for 1 sec (Refer Annexure -5 ,Appendix F)	Set	1	
6.	Breaker handling trolley (For L.V. Breakers)	No.	2	
7.	PLC Based Instrument Interface Panel-1 with Engineering Work Station & Ethernet Cubicle as per Interface Block Diagram	No.	1	
8.	PLC Based Instrument Interface Panel-2	No.	1	
9.	Dummy Panel – Dimensions shall be in line with respective 415V overall panel dimension and width of the dummy panel shall be approximately 700mm.	No.	3	
10.	110V DC system (110V D.C. UPS & DCDB) with SMF (VRLA) battery complete with racks & accessories. One No. Float charger One No. Float cum Boost charger DCDB (Refer Annexure -6 ,Appendix E)	Set	1	



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- Inspection and Testing as specified.
- Submission of documents as specified.
- Painting as specified.
- Preparation of shipment and delivery to site.
- Spares for two years normal operation.
- Start-up spares and commissioning spares.
- List of special tools required (Vendor to provide list with the bid).
- Any other items, required to make system complete.
- Testing & Commissioning.
- Supply & laying of Communication cables and control cables (including termination material) between PLC based Instrument Interface panel to respective Electrical panel within the substation or MCC building. Refer Interface Block Diagram. Vendor to note that cable laying between main substation and MCC room-2 shall be underground in excavated trench. Vendor shall provide necessary protection bricks & sand on laid cables.

3.2 Engineering Services

The Vendor shall provide engineering services, which shall include, but not necessarily be limited to, the following:

- Providing/coordinating detailed design of all equipment and components within the scope of supply.
- Resolving engineering queries related to the equipment and components within the scope of supply.
- Performing all relevant calculations pertaining to the equipment and components within the scope of supply.
- Providing progress reports etc.
- Providing expediting services for all sub-vendors
- Providing quality assurance, including all sub-vendors with respect to ISO 9000 or equivalent.
- Quality Assurance.
- Training of client's personnel at site / Vendor's shop.
- Inspection Test Plan
- QA Plan
- FAT Procedure
- Manufacturing Schedule

3.3 Exclusions

- Installation/Erection.
- Power Cables and associated termination material cable glands & lugs.
- Synchronising Panel
- Busduct
- Transformer



4 Codes and Standards

4.1 General

The supplied Equipment shall meet the requirements of this specification and latest edition of applicable standards listed in enclosed Appendix-C.

4.2 Conflicting Requirements

In case of conflict between documents relating to the enquiry or purchase order, the following priority of documents shall apply.

First priority : Purchase order and variations thereto

Second priority : Data/requisition sheets and drawings

Third priority : This engineering specification.

Fourth priority : International standards.

Note: Should any conflict arise either before or after order placement the Vendor shall immediately inform the Purchaser for technical resolution of the conflict.

5 Design requirements

5.1 General

5.1.1 The vendor shall offer a complete package comprising of 33kV Switchgear, LV Switchgears with soft starter & VFD, PLC Based Instrument Interface Panel, 110V DC System. Refer enclosed Specification and Single line diagram for details.

5.1.2 All equipment shall be designed to operate satisfactorily under the ambient, environmental and power supply conditions as specified in 'Electrical System Data'.

5.1.3 All Switchgears, MCC Boards shall be capable of withstanding the maximum fault current that may arise, duly considering the maximum fault levels on high voltage system, negative tolerance on transformer impedance and maximum possible motor contribution for maximum possible fault clearing time on ultimate backup protection but not lower than one second in any case.

5.2 33kV Switchgear

5.2.1 33kV Switchgear shall be designed to withstand the maximum fault current, voltage variation of $\pm 10\%$, 25kA for 3 seconds.

5.2.2 Further details of the 33kV switchgear are mentioned in 33kV Switchgear specification. (Annexure 4)

5.3 LV Switchgear

5.3.1 LV Switchgear shall be designed to withstand the maximum fault current, voltage variation of $\pm 10\%$, and 50kA for 1second.

5.3.2 LV switchgear shall comprise of PMCC, MCC with soft starters & VFD and separate PLC Based Instrument Interface Panel & Engineering Work Station.

5.3.3 The vendor shall give a detail write-up with sketches, block diagrams, circuit diagrams to explain the principle of operation & salient features of Drive unit offered, along with the offer.

5.3.4 Busduct (By others) shall be provided from transformer (By others) to PMCC incomer & for MCC incomers Cables shall be provided.

5.3.5 Further details of the LV switchgear are mentioned in LV Switchgear specification. Spec. No.: (Annexure-5)



5.4 DC system (Battery & Battery Charger System)

- 5.4.1 DC system shall be 110V and shall comprise of Battery, Battery charger & DCDB.
- 5.4.2 D.C. system sizing shall be carried out by vendor at offer stage based on D.C. requirement of offered 33kV switchgear, L.V. switchgear and Critical lighting requirements.
- 5.4.3 Battery Shall be Sealed Maintenance Free – Valve Regulated Lead Acid (SMF-VRLA) type & Battery back up period shall be 2 Hrs.
- 5.4.5 DC distribution board shall be integral part of DC UPS & provided to feed various loads. The provision of incoming and outgoing feeders on DC distribution boards shall be as specified in the enclosed SLD. However number of outgoing feeders & adequacy of component ratings shall be verified by vendor at offer stage.
- 5.4.6 Further details of the DC System are mentioned in Specification. (Annexure 6)

6 Name Plates

- 6.1 Permanent non-corrosive nameplate with engraved white letters on black background indicating the switchgear designation shall be fixed at the top of the central panel.

- 6.2 Name plates shall contain the following information:

First line : Equipment Item No.
Second line : Equipment Description
Third line : Equipment Rating.
Fourth Line : System voltage.

- 6.3 The following information shall be inscribed on a non-destructive, corrosion-resistant, indelible name/rating plate attached to the inner side of the unit enclosure door:

- Purchaser's order number.
- Year of manufacture.
- Name of Manufacturer.
- Type and serial number of unit.
- Purchaser's Equipment Number.
- Nominal input current and voltage (incl. nature of current & number of phases).
- Rated nominal output current and voltage.
- Nominal DC / battery voltage.
- Ingress protection degree.

- 6.4 All terminals of equipment and components shall be identifiable by alphanumerical markings in accordance with the Manufacturer's drawings. Terminals of input and output supply cables shall be clearly and uniquely marked to indicate their purpose and the phase/polarity of the supply. All wires shall be marked according to the electrical diagrams with closed loop markers (ferrules) or stamped. Danger labels shall have black letters on a yellow background.

7 Makes Of Components

Makes of components shall be as per recommended sub-vendor list attached in tender document.



8 Painting & Finishing:

All metal surfaces shall be thoroughly cleaned and degreased, pickled and phosphatised. Thereafter, a coat of phosphate paint and a coat of zinc chromate primer shall be applied. After removing all imperfections, all metal surfaces shall be sprayed with two coats of final epoxy based paint as per colour shade Silver grey No. 628 (IS-5). All unpainted parts shall be plated to prevent corrosion.

9 Inspection and Testing

9.1 The responsibility for inspection, certification, etc. of all materials, parts lies with the Vendor.

The Vendor shall specify all of the inspection and testing requirements in the quality plan which shall identify the activities requiring the Owner's approval, review, witnessing etc.

Inspection and testing requirements shall be in accordance with this specification, other All Equipment shall be inspected for compliances with:

- Requirement of Owner's specification & correspondence therefore.
- Applicable codes, standards and specifications, which shall also include sub-referenced standards therein.
- Test and Inspection Plans produced by the vendor.

Inspectors have the right to request additional inspections or tests to ensure that the equipment complies with the specification and all relevant codes & standards.

9.2 Manufacturer shall furnish valid Type Test Certificates of similar models for all offered equipment along with the offer. Fresh type tests for the equipment are not needed, provided the Manufacturer can submit certificates that the equipment complies with all type tests as prescribed by IEC/IS Standard specifying the test requirements for that equipment.

9.3 Routine tests on the equipment shall be carried out as per the relevant IS/IEC. Equipment offered for final inspection shall be complete and ready for shipment, with the possible exception of the final paint finish.

9.4 Routine Test certificates to be submitted for Equipment and its all auxiliaries. Type test certificate of similar equipment shall be submitted.

9.5 Vendor to furnish required copies of test certificates, Ref Documents, Drawings, and Instruction Manuals before Equipment are dispatched.

9.6 Factory acceptance test (FAT) is required to be done at no extra cost to the purchaser. FAT procedure for every equipment shall be furnished. The purchaser or his representative shall be advised of the tentative date for FAT at least 3 weeks in advance prior to the test date.

9.7 Any defects found by the TPI or the Owner's appointed Inspector shall be rectified in his presence. Where this is not possible or practical, check lists shall be prepared and signed by the Third Party Inspector stating all "pending items". Copies of these lists shall be sent to the Owner to enable their subsequent checking. The equipment shall not leave the Vendor factory before all defects have been rectified and without the written permission of the Owner.

9.8 All spare parts shall be subjected to the same inspection standards and full material certification as the main order.

9.9 The equipment shall not leave the Vendor / Sub-Vendor's factory before all discovered defects have been rectified and without the written permission of the Owner/Purchaser.



9.10 Any acceptance or release of equipment following an inspection or test activity shall in no way relieve the Vendor of his contractual responsibility to provide guarantees as to the suitability of the materials, workmanship and performance of the equipment in accordance with this Specification.

9.11 Owner/Consultant reserves the right to waive the inspection at any stage. Inspection shall be carried out only on receipt of Vendor's internal test report of the equipment offered and scrutiny of the same. In the event, on receipt of inspection call, the Owner/Consultant's representative reaches the Vendor's works and finds the material not ready for inspection/incomplete/has short supply, the inspector will return to his base station and all expenses incurred by the inspector including to and from travelling expenses from his base station to place of inspection, boarding and lodging etc shall be reimbursed by Vendor.

10 Testing and Commissioning at site

10.1 The responsibility of testing, commissioning and functional testing of equipment lies with vendor.

10.2 Vendor shall perform the following minimum tests at site for respective major electrical equipment.

I 33kV Switchgear:

- a Insulation resistance test.
- b Power frequency high voltage test if directed by Owner / MMCI.
- c C.T. Polarity test & ratio test.
- d Relay operation test by primary & secondary injection method.
- e Functional check of the control circuit.
- f Checking of all relay setting.
- g ON / OFF Operation of the breakers both manually & electrically in test as well as service position.

II L.V. Switchgear:

- a Insulation resistance test.
- b Relay operation test by secondary injection method.
- c Functional test of the control circuit.
- d Checking of setting of all relays / release.
- e ON / OFF Operation of breaker both manually & electrically in test as well as service positions.
- f All outgoing feeder functional test.
- g Interface PLC Panel functional and simulation test with TAS as well as from PLC Panel in totality. Co-ordination with TAS vendor while pre-commissioning activity.

III D.C. UPS System

- a Insulation Test.
- b Functional Test of D.C. UPS & Battery.



11 Vendor Documentation

- 11.1 All information listed below is to be furnished along with the offer as a minimum.
- (a) Clause wise comments / deviations on specification in 'Table of Compliance' [enclosed Appendix B]. If not furnished, compliance to all requirements in specifications will be binding on the Vendor.
 - (b) Duly filled up Guaranteed Technical Particulars.
 - (c) Type test certificates.
 - (d) Technical Catalogues.
 - (e) List of clientele for similar equipment in last 5 years.
 - (f) Documents as per Requisition for Engineering Documents (RED).
 - (g) General arrangement drawing (including sectional drawing) showing dimensions, weight, foundation details, floor cutouts and cable entry details of all the equipment.
- 11.2 The Manufacturer shall furnish the drawings and documents as per enclosed Requisition for Engineering Documents - RED Form [Appendix-D].
- 11.3 The Owner/Consultant will review drawings submitted by Vendor & return to the Vendor one copy of drawings with comments to carry out necessary changes, if any, during the engineering / manufacturing stage.
- 11.4 The documents required by the Third Party Inspection Agency are not covered under this specification. The Vendor shall provide all the drawings and documents required by the Third Party Inspection agency in compliance with the applicable codes and standards.

12 Statutory Approval

The Major Electrical Equipment supplied shall be acceptable to local Electrical Inspectorate and Statutory bodies. Changes required, if any, shall be carried out by the vendor without any extra cost.

13 Spares and Special Tools

13.1 Spares

The Vendor shall include all necessary spares for testing, pre-commissioning, commissioning.

In addition to above, Vendor to provide spares for two years normal operation. Vendor to include cost of spares required for 2 years trouble free operation based on following guidelines :

- A] 33kV SWITCHGEAR
 - Control fuses : 3nos. of each rating
 - Indicating Lamps with lens : 1no. of each colour

- B] 415V SWITCHGEAR

Following spares to be included for each PMCC / MCC

- ACBs : 1set of Tripping coil, Closing coil, Fixed contact, Moving contact for each rating.
- MCCBs : 1no. of each rating.
- MPCBs : 1no. of each rating.
- SFU : 1no. of each rating.
- Power Contactor : 1no. of each rating.
- Thermal overload Relay : 1no. of each rating.
- Control fuses : 3nos. of each rating



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Indicating Lamps with lens : 1no. of each colour
Control contacts for draw out modules
Fixed : 1no.
Moving : 1no.
VFD & soft starter : As per manufacturers recommendation.
Interface PLC : As per manufacturers recommendation.

C] DC SYSTEM

As per manufacturers recommendation.

13.2 Special tools

The Vendor shall supply a set of any special tools, which are required for the commissioning, operation and maintenance of the equipment being supplied. A list of special tools shall be furnished along with the offer.

14 Installation And Commissioning

Vendor shall dispatch Installation instructions at least 2 weeks before the arrival of the equipment.

Vendor shall offer qualified personnel from the Manufacturer to carryout site testing and commissioning of all equipment supplied under this contract.



Appendix - A: Electrical System Data

System Voltages

Nominal system voltage	33 kV	415V
Highest system voltage	36 kV	440V
Frequency	50Hz	50Hz
Lightning Impulse withstand voltage	170 kV (peak)	--
Power frequency withstand voltage for 1 minute	70 kV (rms)	2 kV (rms)

Supply variations

Steady state voltage	± 10 %	± 10 %
Steady state frequency	± 5%	± 5%
Combined Voltage Frequency	± 10%	± 10%
System fault level at rated voltage (Assumed)	25kA for 3s	50kA for 1s
System Earthing	Resistance Earthed	Solidly Earthed



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Appendix - B: Table of Compliance

The Vendor shall confirm that clauses of the specification have been complied with/accepted or further clarifications are desired, or Vendor has taken a deviation with reason thereto.

CLIENT : M/s. Hindustan Petroleum Corporation Ltd. LPG Terminal Project			VENDOR REF.
Spec. Clause No.	Conforms Yes/No	Alternative Yes/No	Clarification
1			
2			
2.1			
2.2			
2.3			
3			
3.1			
3.2			
3.3			
4			
4.1			
4.2			
5			
5.1			
5.2			
5.3			
5.4			
6			
7			
8			
9			
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11			
12			
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14			

Signature and Seal of the Bidder



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CLIENT : M/s. Hindustan Petroleum Corporation Ltd. LPG Terminal Project			VENDOR REF.
Spec. Clause No.	Conforms Yes/No	Alternative Yes/No	Clarification
Appendix A:			
Appendix C:			
Appendix D:			
Appendix E:			
Appendix F:			
Annexure 2			
Annexure 3			
Annexure 4			
Annexure 5			
Annexure 6			



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Appendix - C: Codes & Standards

HV & LV Switchgear

IS 13118 : 1991 Reaffirmed 2002	:	High Voltage alternating current Circuit Breaker.
IS 12729 : 2004	:	Common Specification for High-Voltage Switchgear and Controlgear Standards
IS 3427 : 1997 Reaffirmed 2002	:	A.C. Metal Enclosed Switchgear and Controlgear for Rated Voltages Above 1 kV and Up to and Including 52 kV
IS 9921 – Part 1 : 1981 Reaffirmed 2002	:	Specification for Alternating Current Disconnectors (Isolators) and Earthing Switches for Voltages Above 1 000 V - Part I : General and Definitions
IS-9046 : 1978 Reaffirmed 2002	:	AC contactors of voltage above 1000 V upto and including 11000 V.
IS-6875 – Part 2 : 1973 Reaffirmed 1992	:	Control switches (switching devices for control and auxiliary circuits including contactors relays) for voltages upto and including 1000V AC and 1200V DC - Push Button and related control switches.
IS-3231 : 1986 Reaffirmed 1997	:	Electrical relays for power systems protection: Part 0 – General introduction
IS-2705 Part 1 : 1992 Reaffirmed 2002	:	Current Transformers : Part 1 – General Requirements
IS-2705 Part 2 : 1992 Reaffirmed 2002	:	Current Transformers : Part 2 – Measuring Current Transformers
IS-2705 Part 3 : 1992 Reaffirmed 2002	:	Current Transformers : Part 3 – Protective Current Transformers
IS-2705 Part 4 : 1992 Reaffirmed 2002	:	Current Transformers : Part 4 – Protective Current Transformers for special purpose
IS 12021 : 1987	:	Control Transformer
IS-3156 Part-1 to 4 : 1992 Reaffirmed 2002	:	Voltage Transformers.
IS-5578 : 1984 Reaffirmed 2006	:	Guide for marking of insulated conductors.
IS 4691 : 1985 Reaffirmed 2004	:	Degree of Protection provided by enclosures
IS-11353 : 1985 Reaffirmed 2006	:	Guide for uniform system of marking and identification of conductors and apparatus terminals.
IS-6005 : 1988	:	Code of practice for phosphating of iron and steel.
IS-4483 : 1968 Reaffirmed 2001	:	Preferred panel cut out dimensions for electrical relays - flush mounting IDMTL relays.
IS 13234 : 1992 Reaffirmed 2002	:	Guide for Short-circuit Current Calculation in Three-phase A.C. Systems
IS-1248 : 2003	:	Direct acting indicating analogue electrical measuring instruments and their accessories
IS-2419 : 1979 Reaffirmed 2002	:	Dimensions for panel mounting indicating and recording electrical instruments



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IS-4146 : 1983 Reaffirmed 2001	:	Application guide for Voltage Transformers
IS-4201 : 1983 Reaffirmed 2001	:	Application guide for Current Transformers
IS-4237 : 1982	:	General Requirements for Switchgear and Control Gear for Voltages not exceeding 1000V AC or 1200V DC
IS-4794 : 1985 Reaffirmed 2001	:	Push Button Switches
IS-5082 : 1998 Reaffirmed 2003	:	Wrought aluminium & aluminium alloy bars, rods, tubes and sections for electrical purposes.
IS-6236 : 1971 Reaffirmed 2005	:	Direct recording electrical measuring instruments.
IS 8623 : 1993 Reaffirmed 1998	:	Specification for Low-Voltage Switchgear and Controlgear Assemblies
IS-13703 Part-1: 1993 Reaffirmed 2004	:	Low Voltage Fuses
IS 10118 : 1982 Reaffirmed 2006	:	Code of Practice for Selection, Installation and Maintenance of Switchgear and Controlgear
IS-11353 : 1985 Reaffirmed 2006	:	Guide for uniform system of marking and identification of conductors and apparatus terminals
IS 13947 Part-1 : 1993 Reaffirmed 2004	:	Specification for Low-voltage Switchgear and Controlgear
IS 13947 Part-2 : 1993 Reaffirmed 2004	:	Specification for Low-voltage Switchgear and Controlgear – Part 2 : Circuit Breakers
IS 13947 Part-3 : 1993 Reaffirmed 2004	:	Specification for Low-voltage Switchgear and Controlgear – Part 3 : Switches, Disconnectors, Switch Disconnectors and Fuse Combination Units
IS 13947 Part-4 : 1993 Reaffirmed 2004	:	Specification for Low-voltage Switchgear and Controlgear – Part 4 : Contactors and Motor-Starters – Section 1: Electromechanical Contactors and Motor Starters
IS 13947 Part-5 (Section1) : 1993	:	Specification for Low-voltage Switchgear and Controlgear – Part 5 : Control Circuit Devices and Switching Elements – Section 1 : Electromechanical Control Circuit Devices
IS 3043 : 1987	:	Earthing
IEC 60947 : 2007	:	Low Voltage Switchgear & Controlgear- Part 1 - General rules
IEC 60255	:	Electrical Relays
IEC 61850	:	Numerical Relays
IEC 62271-1 : 2008	:	Common Specifications for High Voltage Switchgear and Control Gear Standards
IEC 62271-200 : 2003	:	AC Metal enclosed Switchgear and Control Gear for Rated Voltage 1kV and including 52kV
IEC 62271-100 : 2007	:	High Voltage Circuit Breakers.
IEC 60038 : 2003	:	IEC standard Voltages



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- IEC 60059 : 2009 : IEC standard current ratings
- IEEE C37.21 : 2005 : IEEE Standards for Control Switchboards
- IEC 60439 : 2004 : Low voltage switchgear and control gear Assemblies Part 1: Type-tested and partially type-tested assemblies.
- IEEE 519 : 2004 : Recommended Practices & Requirements for Hazardous Control in Electrical Power Systems

DC UPS : Battery, Battery Charger & DCDB system

- IEC 60086 : 2006 : Batteries-General
- IEC 60896 Part-2 : 1995 : General requirement & method of tests for Valve regulated type batteries
- BS 6290 Part-4 : 2007 : Specification for sealed Valve regulated Lead acid batteries
- BS 6745 Part-1 : 1986 : Specification for performance, design and construction of valve regulated sealed type batteries
- IS 14901 Part-1 : 2001 : Essential Ratings and Characteristics of Semi-Conductor Devices.
- IS 14901 Part-7 : 1970 : Essential Ratings and Characteristics of Semi-Conductor Devices Part-VII : Reverse Blocking Triode Thyristors
Reaffirmed 2006
- IS 14901 Part 1, 3 & 7 : Letter Symbols for Semi-Conductor Devices.
- IS 3715 Part-4 : Letter Symbols for Semi-Conductor Devices : Part-IV - Thyristors.
- IS 13947 Part-3 : 1993 : Specification for Low-voltage Switchgear and Controlgear – Part 3 :
Reaffirmed 1998 Switches, Disconnectors, Switch Disconnectors and Fuse Combination Units.
- IS 13947 : 1993 : Specification for Low-voltage Switchgear and Controlgear - Part 1 :
Reaffirmed 2004 General Rules
- IS 1248 : 2003 : Direct Acting Indicating Analogue Electrical Measuring Instruments and their Accessories
- IS 13947 Part 1 : 1993 : Degrees of protection provided by enclosures
Reaffirmed 2004
- IS- 3231 : 1986 : Electrical Relays
Reaffirmed 1997
- Is 8623 : 1993 : Factory built assemblies.
Reaffirmed 1998
- IS- 13947 Part 4–Section : Specification for Low Voltage Switchgear and Controlgear Part 4 :
4: 1993 Reaffirmed 2004 Contactors and Motor Starters.
- IS- 13947 Part 3 : 1993 : Control Switches and Push Button Stations
Reaffirmed 2004

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IS- 4540 : 1968
Reaffirmed 2001

: Semiconductor rectifier cells and stacks mono crystalline.



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Appendix - D: Requisition for Engineering Documents

RED Form					
Owner's Office			Distribution Office		
M/s. Hindustan Petroleum Corporation Ltd. Viskaha Dispatch Station VR-ATP Area, Naval Base Post Visakhapatnam – 530 014			Mott MacDonald Consultants(I) Pvt. Ltd Kothari House, CTS No. 185 Off Andheri – Kurla Road Andheri (East), Mumbai 400059, India		
SPECIAL INSTRUCTIONS			Prints	Documents shall be sent to:	
Production Schedule			5	The Purchasing Office via courier service	
Manufacturing, inspection & testing sequence plan			5	The Purchasing Office via courier service	
DRAWINGS	Required number for				TIMING FOR SUBMITTAL
	OFFER	APPROVAL	FINAL		
Approval drawings / Final drawings to be submitted under cover of an ADS form / FDS form respectively	Prints	Prints	Disk	Prints	- for approval 2 weeks after order date - final issue 2 weeks after approval date Documents shall be submitted to:
Submission of Following not limited to:					
33kV Switchgear, LV Switchgear, Interface PLC:					
Guaranteed Technical Particulars with values filled up	2	5	2	10	Purchasing Office via courier service
General Arrangement Drawing showing masses, Main dimensions, arrangement of auxiliary components, sectional details etc.	2	5	2	10	
Name Plate Drawing	-	5	2	10	
Foundation Plan & Loading Details, Baseframe details, floor cut-outs for Switchgears	2	5	2	10	
Block Logic, Control Schematics, Soft starter, VFD Schematics, Interface PLC block diagram & Schematics & Connection diagrams	-	5	2	10	
Busbar sizing Calculation, Termination diagram	-	5	2	10	
Bill of Material	-	5	2	10	
Single Line Diagram, feeder List	2	5	2	10	
Make of Each Component, List of Makes	2	5	2	10	
As built Drawings	-	5	2	10	
Battery, Battery Charger & DCDB system					
Guaranteed Technical Particulars with values filled up	2	5	2	10	Purchasing Office via courier service
Brief Write up on D.C. System operation, List of Alarms / Annunciation	-	5	2	10	
General Arrangement Drawing showing plan, elevation & typical section views, Particularly typical sections, to illustrate cable connections.	2	5	2	10	
Foundation Loading Plan showing fixing channels, Floor openings etc. and max. depth/weight/shock loading on foundation of panel	2	5	2	10	
Bill of Materials for each equipment, D.C. System Block Diagram	-	5	2	10	
Main & Control Circuit Schematic Diagrams / Wiring diagrams	-	5	2	10	
Make of Each Components	2	5	2	10	
SLD for DCDB, Battery drawings	2	5	2	10	
Calculations: ▪ Battery Sizing Calculation ▪ Float Charger Sizing Calculation ▪ Float Cum Boost Charger Sizing Calculation	2	5	2	10	
Backup documents/Graphs for calculations					
Name Plate Drawing	-	5	2	10	
Following documents to be submitted for supplied equipment within the Major Electrical Equipment package					



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Type Test, Routine Test Certificates	2	5	2	10	Purchasing Office via courier service
Operating manuals, incorporating installation, commissioning, operating & maintenance instructions and fault finding procedures		5	2	10	
Spares List for two Years Operation	2	5	2	10	
As Built Drawing		5	2	10	
SPARE PARTS DOCUMENTS			1	10	
ESPIR forms including 1 transparency					
TEST AND INSPECTION DOCUMENTS				Prints	Documents shall be submitted to:
Documents to be submitted under transmittal					
Manufacturing report			2	10	Purchasing Office via courier service within 4 weeks Of relevant test / inspection.
Test Report / Data Curves, Inspection Test Plan, QA Plan			2	10	
Inspection Test Plan			2	10	
QA Plan			2	10	
FAT Procedure			2	10	
Calibration Certificates for testing Instruments.			2	10	
Bought out Equipments Certificates.			2	10	
OPERATING DOCUMENTS					Purchasing Office via courier service not later than time of Dispatch of equipment.
Installation instructions			2	10	Combine into one manual
Operating instructions			2	10	
Maintenance instructions			2	10	
ADDITIONAL REQUIREMENTS					
1. Referenced standards / codes shall be the latest issue unless otherwise stated.					
REMARKS					
<p>Invoice must certify that the drawings and engineering documents specified above have been dispatched to all parties concerned. Any deviation from the timing for submittal of documents shall be notified to the Approval / Distribution Offices by fax or E mail. Shop fabrication shall not be started before the required approval drawings have been released for construction by the party concerned, unless otherwise stated on the "Approval Drawing Specification". Each document shall bear the item / tag and order reference number and be dispatched by air mail, unless other instructions are stated on the RED.</p>			<p>Units / dimensions to be used on Engineering documents shall be SI. The documents shall be in English. Description on drawings and similar documents may be in other languages provided English translations are also given. Drawings and documents shall be suitable for microfilming and comply with accepted national or international standards for the preparation of technical drawings. Only the following standard sizes should be used: A4, A3, A2, and A1.</p>		



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Appendix - E: Recommended List of approved vendors

33 kV Switchgear	:	Siemens / ABB / AREVA / Schneider
PMCC & MCC	:	Siemens / L&T / Schneider / ABB
ACB	:	Siemens / L&T / ABB / Schnieder
MCCB	:	L&T / Areva / ABB / Siemens / Merlin Gerin
MPCB	:	L&T / Areva / ABB / Siemens
SFU	:	L&T / Siemens / ABB
VFD	:	L&T / Siemens / Schnieder / ABB
Softstarter	:	L&T / Siemens / Schnieder / ABB
PLC	:	ABB / Siemens / Schnieder / GE
Protection Relays, Aux. Relays	:	Areva / ABB / Siemens / SEL
LT contactor & O/L Relays	:	Siemens / Tele-mechanic / L & T /Control & Switch Gear / SEL
Selector switches / Control switches	:	GECALSTHOM / KAYCEE/ ABB / Siemens / Rishab.
LT, CTS	:	Automatic electric / ECS / KAPPA electricals / Pragati / Gemini
PTs	:	Pragati / KAPPA electricals / ECS / Gemini
Annunciators	:	GEC / ALSTOM/ Yashmin / Bharani Electronics / MECO / Minilec
Indicating Meters	:	Automatic electric industrial Meters Pvt. Ltd., / IMP / MECO / RISHAB / Enercon / L&T
Microprocessor Based Meters	:	ENERCON / ABB / Siemens / L&T
Integrating meters	:	IMP / BHEL / Universal Instruments / AE / L&T
Indicating lamps (LED type only) & Push buttons	:	GECALSTHOM/ Siemens / L & T / Telemecanique / Teknic
Charger / Rectifier	:	Amar Raja Power Systems (P) Ltd / HBL-Nife Power Systems Ltd / Universal Industrial Products / Mass Tech Control
Batteries	:	Amar Raja / HBL Nife / Exide / AMCO / Standard
MCB	:	L&T / ABB / Siemens / Merlin Gerin / MDS



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Appendix - F: Drawings & Single Line Diagrams (As Attached)



- | | | | |
|----|---------------------------------------------------------|---|-----------------------------------------------------------------------------------|
| 1) | Main S/S Equipment Layout
MCC Room Equipment Layout: | : | Drg. No.-256324-500-ELE-4201-Sheet 1 & 2
Drg. No.-256324-500-ELE-4202- Sheet 1 |
| 2) | 33kV SLD | : | Drg. No.-256324-500-ELE-4101- Sheet 1 |
| 3) | 415V PMCC SLD | : | Drg. No.-256324-500-ELE-4102-Sheet 1 to 4 |
| 4) | 415V MCC SLD | : | Drg. No.-256324-500-ELE-4103-Sheet 1 to 7 |
| 5) | L.V. Switchgear Schematics
& Interface Block Diagram | : | Drg. No.-256324-500-ELE-4107-Sheet 1 to 6 |
| 6) | 110V D.C. UPS SLD | : | Drg. No.-256324-500-ELE-4105- Sheet 1 |

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Annexure - 2: SOQ (As attached)

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Annexure - 3: Indicative Inspection & Test Plan (As attached)

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Annexure - 4: Specification & Data sheet for 33KV Switchgear (As Attached)

Annexure - 5: Specification & Data sheet for LV Switchgear (As Attached)



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Annexure - 6: Specification & Data sheet for DC System (As Attached)