



## **BHEL-ISG-BANGALORE**

BHEL-ISG, Prof.CNR Rao Circle, IISc Post, Malleswaram, Bangalore- 560 012

### **NOTICE INVITING TENDER**

**Ref : 77/11/6283/RSB**

**Date: 09-12-2011**

**Subject: Tender for SUPPLY OF SLURRY PUMPS FOR 2X250MW GSECL, SIKKA TPS.  
Tender Ref: 77/11/6283/RSB**

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Please submit your lowest quotation subject to our Terms & Conditions for the tender referred above. The following documents can be downloaded from Website [www.bhelisg.com](http://www.bhelisg.com) or [www.bhel.com](http://www.bhel.com) or <http://tenders.gov.in>

<b>Sl.No.</b>	<b>Description</b>	<b>Document Ref.</b>
01	NIT & Qualifying Criteria, Commercial Terms & Conditions etc.	Volume – 1
02	Technical Specifications, scope of supply etc.	Volume – 2
03	Price Bid Format	Volume – 3

**Senior Deputy General Manager  
Materials Management (BG-1B)**



ISG BANGALORE

**PROJECT:**  
**2 x 250 MW, GSECL, Sikka TPS**



SUPPLY OF ASH  
SLURRY PUMPS FOR 2X250MW  
GSECL, SIKKA TPS.

**CONTENT SHEET**

**VOL.-1**

**CONTENT SHEET OF VOL. - 1**

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ISG BANGALORE

**PROJECT:**  
**2 x 250 MW, GSECL, Sikka TPS**



SUPPLY OF ASH SLURRY  
PUMPS FOR 2X250 MW,  
GSECL, SIKKA TPS.

**NIT & QUALIFYING CRITERIA****VOL.-1, SEC-1****NOTICE INVITING TENDER (NIT) & QUALIFYING CRITERIA**

1	Tender inviting officer / Authority, Designation and Address.	Sr. Deputy General Manager /MM / BG 1B BHEL-ISG, Prof.CNR Rao Circle, IISc Post, Malleswaram, Bangalore- 560 012
2	Item Description	<b>SUPPLY OF ASH SLURRY PUMPS FOR 2X250MW GSECL, SIKKA TPS.</b>
3	Tender Reference no.	<b>77/11/6283/RSB</b>
4	Delivery period	2 months from the date of manufacturing clearance.
5	Due date, Time and place for submission of tender.	23.12.2011 Up to 02.00PM BHEL-ISG Tender box placed at the Reception of ISG & EPD. BHEL-ISG, Prof CNR Rao Circle, IISc Post, Malleswaram, Bangalore- 560 012
6	Place, Date and Time of Tech. Bid opening.	BHEL-ISG office. Techno-commercial offers will be opened at 03.00 PM on due date in the presence of the vendors who choose to be present. Price bids of technically, commercially accepted and customer approved vendors will be opened subsequently and the date for the same shall be intimated separately.
7.	Pre-Qualification Criteria	<p>The bid is open for participation to those bidders who satisfy the following requirements:-</p> <p>1.1 Bidder should have designed, engineered, manufactured, supplied, erected, tested and commissioned at least two (2) <b>Ash Slurry Pumps</b> of <b>MINIMUM</b> 600 m<sup>3</sup> / Hr at 30 MWC rating for Ash Handling plant of thermal power stations and these Ash Slurry Pumps should be in successful operation in India for a period of at least Two (2) years in the preceding 5 years on the date for submission of bid.</p> <p>1.2 Bidder should have assembly/ testing facilities in India. And same shall be indicated in the offer.</p>



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**NIT & QUALIFYING CRITERIA**

**VOL.-1, SEC-1**

		1.3 Bidder shall provide documentary evidence in support of his claim for having experience in design, manufacture, supply, erection, testing and commissioning of <b>Ash Slurry Pumps</b> for Ash Handling Plants which are in operation as on the date of submission of bid.
8	Mode of Submission of tender	<p>The tender shall be submitted duly stamped &amp; signed in two parts as below in separate sealed envelopes super-scribed with tender reference and due date.</p> <p><b>Part-1</b> : Techno-commercial bid containing Technical documents, Documents of Pre-Qualification Criteria, Commercial Terms &amp; Conditions(CTC), Un-priced bid, Deviation format, etc.</p> <p><b>Part - 2</b> : Price bid</p> <p>The above two sealed envelopes should be put in another sealed cover. This outer cover should be super-scribed with the tender reference no., due date etc. and should reach us latest by 2-00 PM on due date.</p>

**COMMERCIAL TERMS & CONDITIONS FOR SUPPLY OF ASH SLURRY PUMPS FOR 2X250 MW, M/s  
GSECL, SIKKA TPS.**

**Tender Reference No. 77/11/6283/RSB**

<b>Sl. No.</b>	<b>Clause</b>	<b>BHEL REQUIREMENT</b>	<b>SUPPLIER'S ACCEPTANCE / REMARKS</b>
1.0	<b>Price Basis</b>	Firm for entire period of contract , FOR Site Basis, inclusive of all taxes, packing, forwarding and freight charges. Insurance by BHEL. Any new taxes/duties imposed by Government after placement of PO shall be reimbursed as per actuals on documentary evidence.	
2.0	<b>Excise Duty / Custom Duty</b>	Excise Duty/custom duty as applicable is payable extra at actuals. Percentage considered shall be indicated by the bidder in their offer.	
3.0	<b>Sales / Other Taxes</b>	To be included in the price. However, rate considered along with the amount included in the price to be indicated separately in the price bid. Sales tax shall be paid extra at actuals as per prevailing rate at the time of despatch. Vendor shall submit E1 form after receipt of "C" Form from BHEL .	
4.0	<b>Freight</b>	Lumpsum Freight Charges to be indicated in the price bid . This shall be paid on pro-rata basis against despatches and limited to the freight charges indicated in the price bid.	
5.0	<b>Terms of Payment</b>	<b>For Supply :-</b> (a) 90% direct payment against despatch documents and submission of invoice (original + 3 Copies). (b) Balance 10% direct payment against receipt of material at site. Invoice to be submitted with Receipted LR or Receipted Delivery Challan and all technical documents as per PO for claiming this payment. <b>For Supervision of Erection &amp; Commissioning :-</b> 100% payment for the service rendered on manday rate basis alongwith applicable service tax against submission of invoice and certification from BHEL engineer	
6.0	<b>Delivery Period</b>	2 (Two) months from the date of manufacturing clearance	
7.0	<b>Liquidated Damages</b>	Any delay in PO delivery will attract LD @0.5% of the order value per week of delay and prorata for a part of week subject to maximum of 5% of the total order value . Date of inspection call along with internal Test certificates will be taken as delivery date for LD purpose , provided the material is found ready and acceptable during inspection.	
8.0	<b>Performance Bank Guarantee</b>	PBG for 10% of total order value is to be submitted by the successful vendor and kept valid up to the guarantee period with an additional claim period of 3 months thereafter. This PBG is to submitted along with first invoice or earlier by the vendor from the list of BHEL Consortium Banks as per BHEL PBG Format enclosed.	
9.0	<b>Inspection</b>	Inspection shall be carried out by Customer/ Consultant / BHEL/ Third party as the case may be. Vendor to give minimum of 7 days notice for inspection along with internal test certificates. In case the items are not found ready after the inspection call , then the expenses incurred by customer/BHEL for travel, stay etc shall be recovered from the suppliers/vendors bill.	
10.0	<b>Guarantee Period</b>	12 months from the date of Commissioning or 24 months from the date of last dispatch which ever is earlier.	
11.0	<b>Transit Insurance</b>	By BHEL. Advance intimation with dispatch details to be given by the supplier to the underwriter at the time of dispatch with a copy to BHEL.	
12.0	<b>Drawing Submission</b>	Drawings/Data sheet and QAP shall be submitted by the Supplier within one week of PO, for obtaining approval from customer/consultant/BHEL. Drawing approval shall be accorded within two weeks there after.	
13.0	<b>Validity of offer</b>	90 Days from the date of Techno- commercial bid opening.	
14.0	<b>Risk Purchase</b>	In case of default/late delivery, purchaser reserves the right to make alternate arrangement for procurement at suppliers risk and cost.	

Sl. No.	Clause	BHEL REQUIREMENT	SUPPLIER'S ACCEPTANCE / REMARKS
15.0	<b>Arbitration</b>	Subject to Bangalore Jurisdiction only, based on the Indian Arbitration & Conciliation Act 1996 with latest amendments if any.	
16.0	<b>Quantity Variation</b>	Price quoted by the Vendor shall be valid for ordering additional quantities upto 25% within delivery period of PO.	
17.0	<b>Consignee Address</b>	Will be intimated later.	
18.0	<b>Contract No of BHEL</b>	IS-1-07-2006	
19.0	<b>Reverse Auction</b>	BHEL reserves the right to go in for Reverse Auction instead of opening the submitted sealed price bid, which will be decided after techno-commercial evaluation and vendor approval from customer. In case the reverse auction couldnot be conducted due to any reasons, BHEL reserves the right to open the sealed price bids in public and finalise the placement of order accordingly. Non acceptance of this clause by the vendor shall be liable for rejection of their offer.	
20.0	<b>ECS Payment</b>	Payment will be made by e-payment only and for which the vendors are to provide the following information along with their offers in their letter head dully signed.i) Bank name and address ii) bank phone no iii) bank IFSC code (NEFT)iv) Bank account no v) PAN no vi)Service tax no vii) TIN no viii) E mail ID.	
21.0	<b>Bills Submission</b>	1) All invoices against our order are required to be sent in a sealed envelope addressed to BHEL-ISG VENDOR BILLS BOX, BHEL INDUSTRIAL SYSTEMS GROUP, OPP IISc, PROF.C.N.R. RAO CIRCLE, MALLESWARAM, BANGALORE - 560 012.The envelope shall be super-scribed with Project Name/PO.No and the bill/Invoice Numbers & Contact person. 2) Bills/Invoices which are brought personally by vendors to ISG are to be dropped in the "BHEL-ISG Vendor Bill Box" kept near Tender Box at the reception office.	
22.0	<b>Rejection of Offer</b>	BHEL reserves the right to reject the offer, in case the bidders' past performance in any of the BHEL's previous contracts is not found satisfactory.	
23.0	<b>Banned Suppliers / Contractors in BHEL</b>	The offers of the bidders who are on the banned list as also the offer of the bidders , who engage the services of the banned firms , shall be rejected. The list of the banned firms is available on BHEL web site www.bhel.com.	
24.0	<b>Price bid opening</b>	Price bids of technically and commercially qualified and customer approved vendors only shall be opened for evaluation.	
i)	<b>Note:</b> All the clauses of the above format should be filled and submitted with the Techno Commercial Bid (Part-1). The filled in BHEL Commercial terms & Conditions format submitted with technical bid responding to all the clauses duly signed with seal only shall be considered. Any other Commercial terms & conditions of the bidder entered else where in their offer shall not be considered and are liable for rejection.		
ii)	Prices for supervision of erection & commissioning is optional and to be quoted on "MAN DAY" basis. The quoted rates should be valid till contract completion date i.e.10-04-2014.		

Signature of the bidder with Seal &amp; Date



**PROJECT:**  
2 x 250 MW, GSECL, Sikka TPS



**SUPPLY OF ASH SLURRY  
PUMPS FOR 2X250 MW  
GSECL SIKKA TPS.**

**DEVIATION FORMAT**

**Vol.-1, Sec-3**

## **DEVIATION FORMAT**

### **1.1 TECHNICAL**

Following are the DEVIATIONS from Enquiry Specifications :

TECHNICAL SPECIFICATIONS				
Sl. No.	Page No.	Clause No.	Clause	Deviation

We confirm that all other clauses of Technical Specifications are fully acceptable.

SIGNATURE OF BIDDER WITH SEAL



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**1.2 COMMERCIAL TERMS & CONDITIONS**

Following are the DEVIATIONS from enquiry Terms & Conditions

**COMMERCIAL TERMS & CONDITIONS**

Sl. No.	Page No.	Clause No.	Clause	Deviation

We confirm that all other clauses of Commercial terms & conditions are fully acceptable.

SIGNATURE OF BIDDER WITH SEAL



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Special Instructions to Bidders

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**SPECIAL INSTRUCTIONS TO BIDDERS**

1. Offer should conform to our Technical Specification, Commercial Terms & Conditions (CTC). Any deviation on Technical specification and Commercial Terms & Conditions shall be explicitly highlighted in the Deviation Format enclosed. In case of "No Deviation", the Bidder should write "No Deviation" in the Deviation Format ( both in Technical and Commercial Terms & Conditions) and submit the same with Techno-Commercial Bid (Part-1).
2. Acceptance/Remarks Column of BHEL CTC should be filled against all CTC Clauses, duly Signed, Stamped and submitted with Techno-Commercial Bid (Part-1). The filled in BHEL CTC format submitted with technical bid responding to all the clauses duly signed with seal **only shall be considered**. Any other Commercial terms & conditions (CTC) of bidders entered else where in their offer shall not be considered and are liable for rejection.
3. Un-priced price bid format to be filled and submitted along with techno-commercial bid (part-1) indicating "Quoted" against the respective item/column duly signed and stamped. Un Priced bid format not complied with the above shall be liable for rejection.
4. All prices should be quoted both in figures & words as per Commercial terms & conditions of NIT. In the event of discrepancy between the figures and words in the Price Bid, the amount entered in WORDS would be taken into consideration for evaluation and finalisation of the order.
5. The Tender shall be submitted in Two parts as follows, in separate sealed envelopes super- scribed with Tender Reference and Due date.

PART-1 : Technical documents , Documents of Pre-Qualification Criteria, Commercial Terms & conditions, Deviation Format , Un-priced price bid format etc.

PART-2 : Price Bid

The above Two sealed envelopes should be put in another cover. This outer cover should be super-scribed with the Tender Reference Due Date etc. and should reach us latest by 2-00 PM on the due date.



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6. BHEL reserves the right to extend the due date for submission of tender without assigning any reasons.
7. Offers not complied with NIT requirement shall be liable for rejection.
8. All the pages of Tender documents shall be duly signed, stamped and submitted along with offer as a token of Acceptance.
9. The Rates quoted should be valid for 90 days from the date of opening of Techno-Commercial Bid .
10. Tender shall be deposited in the BHEL-ISG Tender box located at the Reception of BHEL, Malleshwaram complex and tender opening will be done at the Reception of ISG entrance at 3.00 pm on due date.
11. Late tenders shall not be accepted.
12. Price bids of technically and commercially qualified and customer approved vendors only shall be opened for evaluation and finalisation of tender.



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Section-5

(To be stamped in accordance with Stamp Act)

### PERFORMANCE BANK GUARANTEE

This deed of Guarantee made this \_\_\_\_\_ day of \_\_\_\_\_ Two Thousand \_\_\_\_\_ between \_\_\_\_\_ (Bank Name & Address) (hereinafter called "THE GUARANTOR" (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns) of the ONE PART and Bharat Heavy Electricals Limited (a Government of India Undertaking), a Company incorporated under the Companies Act, 1956, having its Registered Office at BHEL House, Siri Fort, New Delhi 110 049, through its Unit / Division at ISG, Bangalore (hereinafter called "THE COMPANY") (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns) of the OTHER PART.

WHEREAS M/s \_\_\_\_\_ (Vendor Company name) (hereinafter referred to as the "SUPPLIER / CONTRACTOR") have entered into a contract No. \_\_\_\_\_ dated \_\_\_\_\_ (hereinafter called the "CONTRACT" for supply / construction of \_\_\_\_\_ with the COMPANY.

AND WHEREAS the CONTRACT inter-alia provides that the CONTRACTOR / SUPPLIER shall furnish to the COMPANY a sum of Rs, \_\_\_\_\_ (Rupees \_\_\_\_\_ only) towards security deposit for due and faithful performance of the CONTRACT in the form and manner specified therein.

AND WHEREAS the CONTRACTOR / SUPPLIER has approached the GUARANTOR and in consideration of the arrangement arrived at between the CONTRACTOR / SUPPLIER and the GUARANTOR, the GUARANTOR has agreed to give the Guarantee as hereinafter mentioned in favour of the COMPANY.

NOW THIS DEED WITNESSESS AS FOLLOWS –

1. The Guarantee do hereby guarantee to the COMPANY the due and faithful performance, observance or discharge of the CONTRACT by the CONTRACTOR / SUPPLIER and further unconditionally and irrevocably undertake to pay to the COMPANY without demur and merely on a demand, to the extent of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) and claim In made by the COMPANY on them for any loss, damage, costs, charges and expenses caused to or suffered by the COMPANY by reason of the CONTRACTOR / SUPPLIER making



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- any default in the performance, observance or discharge of the terms, conditions, stipulations or undertakings or any one of them as contained in the CONTRACT.
2. The decision of the COMPANY whether any default has occurred or has been committed by the the CONTRACTOR / SUPPLIER in the performance, observance or discharge of any of the terms, conditions, stipulations or undertakings or any one of them as contained in the CONTRACT and / or as to the extent of loss or damage costs. Charges and expenses caused to or suffered by the COMPANY by reason of the CONTRACTOR / SUPPLIER making any default in the performance, observance or discharge of any of the terms, conditions, stipulations or undertakings or any one of them shall be conclusive and binding on the GUARANTOR, irrespective of the fact whether the CONTRACTOR / SUPPLIER admits or denies the default or questions the correctness of any demand made by the COMPANY in any Court, Tribunal or Arbitration Proceedings or before any other Authority
  3. The COMPANY shall have the fullest liberty without affecting in any way the liability of the GUARNATOR under this Guarantee from time to time to vary any of the terms and conditions of the CONTRACT or extend time of performance by the CONTRACTOR / SUPPLIER or to postpone for any time and from time to time any of the powers exercisable by it against the said CONTRACTOR / SUPPLIER and either to enforce or forbear from enforcing any of the said terms and conditions governing the said CONTRACT or the advance or securities available to the COMPANY and the GUARANTOR shall not be released from its liability under these presents by any exercise by the COMPANY of the liberty with reference to the matters aforesaid or by reason of time being given to the CONTRACTOR / SUPPLIER or any other forbearance, act or omission on the part of the COMPANY or any indulgence by the COMPANY to the said CONTRACTOR / SUPPLIER or of any other matter or thing whatsoever which under the law relating to sureties, would, but for this provision have the effect of so releasing the GUARANTOR from its liability under this GUARANTEE.
  4. The GUARANTOR further agree that the GUARANTEE herein contained shall remain in full force and effect during the period that would be taken for the performance of the CONTRACT and its claims satisfied of discharged and till \_\_\_\_\_ certifies that the terms and conditions of the CONTRACT have been fully and properly carried out by the CONTRACTOR / SUPPLIER and accordingly discharges this GUARANTEE subject, however, that the COMPANY shall have no claim under this GUARANTEE after \_\_\_\_ years from the date of completion of the CONTRACT, as the case may be, unless a notice of the claim under this GUARANTEE has been served on the GUARANTOR before the expiry of the said period in which case the same shall be enforceable against the



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GUARANTOR notwithstanding the fact that the same is enforced after the expiry of the said period.

5. The GUARANTOR undertake not to revoke this GUARANTEE during this period it is in force except with the previous consent of the COMPANY in writing, and agree that any liquidation or winding up or dissolution or any change in the constitution of the CONTRACTOR / SUPPLIER or the GUARANTOR shall not discharge the GUARANTOR's liability hereunder.
6. It shall not be necessary for the COMPANY to proceed against the CONTRACTOR before proceeding against the GUARANTOR and the GUARANTEE herein contained shall be enforceable against them notwithstanding any security, which the COMPANY may have obtained or obtain from the CONTRACTOR / SUPPLIER shall, at the time when proceedings are taken against the GUARANTOR hereunder be outstanding or unrealized.
7. The GUARANTOR hereby declares that it has power to execute this GUARANTEE under its Memorandum and Articles of Association and the executant has full powers to do so on its behalf under the Power of Attorney dated \_\_\_\_\_ granted to him by the proper authorities of the GUARANTOR.

IN WITNESS whereof \_\_\_\_\_ (Bank Name & Address) and Bharat Heavy Electricals Limited, have hereunto set and subscribed their respective hands the day, month and year first above written.

WITNESS :

1

2

Signed for and on behalf of the BANK



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**"ANNEXURE TO PBG"**

**PERFORMANCE BANK GUARANTEE SUBMISSION – GUIDELINES**

Performance Bank Guarantee is to be submitted as per following guidelines :

01	List of BHEL consortium Bank Names are enclosed ( 29 Banks). Bank guarantees of BHEL consortium banks are only acceptable.
02	In case of Bank Guarantees issued by non-consortium PSU banks the same are to be enforceable in Bangalore.
03	In case BGs issued by Foreign Banks the same may be confirmed by our consortium bank in India.
04	BGs to be submitted should be sent to BHEL-ISG Attn: DGM/MM/BG-IB directly by the issuing bank under Registered Post (A.D). On receipt of the PBG the same will be preliminarily checked by the receiving officer and in case of any corrections PBG will be returned to the issuing Bank for necessary action.
05	Bank Guarantee to be submitted in the prescribed format enclosed and shall be same verbatim as per the format. Bank Guarantee shall be submitted on right value of stamp paper and for correct value of contract.
06	Performance Bank Guarantee shall be extended within the expiry dates wherever activities as per contract are not completed in all respects.
07	In case of any contract amendment during execution of the contract enhancing value of the contract the PBG value shall be enhanced accordingly. Validity of PBG shall be as per commercial terms and conditions of the tender.



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### LIST OF CONSORTIUM BANKS

- 1 STATE BANK OF INDIA
- 2 PUNJAB NATIONAL BANK
- 3 HDFC BANK
- 4 SYNDICATE BANK
- 5 CANARA BANK
- 6 INDIAN BANK
- 7 ST. BANK OF HYDERABAD
- 8 ICICI BANK
- 9 STANDARD CHARTERED BANK
- 10 UCO BANK
- 11 KOTAK MAHINDRA
- 12 ORIENTAL BANK OF COMMERCE
- 13 STATE BANK OF TRAVANCORE
- 14 CENTRAL BANK
- 15 IDBI BANK
- 16 FEDERAL BANK
- 17 HSBC LTD
- 18 DEUTSCHE BANK
- 19 CORPORATION BANK
- 20 CITI BANK
- 21 BANK OF BARODA
- 22 ABN AMRO BANK
- 23 UNITED BANK OF INDIA
- 24 VIJAYA BANK
- 25 UNION BANK OF INDIA
- 26 PUNJAB & SIND BANK
- 27 ANDHRA BANK
- 28 BANK OF INDIA
- 29 AXIS BANK



GSECL 2X250 MW TPP SIKKA,  
EXTENSION UNITS 3 & 4  
ENQUIRY SPECIFICATIONS FOR ASH SLURRY  
PUMPS

SPECIFICATION NO.  
IS-1-07-2006/A003

ENQUIRY NO.  
77/11/6283/RSB

VOLUME-2

**GESCL 2X250 MW TPP SIKKA  
EXTENSION UNIT 3 & 4**

CUSTOMER CONSULTANT: TCE CONSULTING ENGINEERS LIMITED, BANGALORE

**ENQUIRY SPECIFICATIONS FOR ASH SLURRY PUMP  
FOR SLURRYFICATION SYSTEM**



**BHARAT HEAVY ELECTRICALS LIMITED  
INDUSTRIAL SYSTEMS GROUP  
BANGALORE**



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GSECL 2X250 MW TPP SIKKA,  
EXTENSION UNITS 3 & 4  
ENQUIRY SPECIFICATIONS FOR ASH SLURRY  
PUMPS

SPECIFICATION NO.  
IS-1-07-2006/A003

ENQUIRY NO.  
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GSECL 2X250 MW TPP SIKKA,  
EXTENSION UNITS 3 & 4  
ENQUIRY SPECIFICATIONS FOR ASH SLURRY  
PUMPS

SPECIFICATION NO.  
IS-1-07-2006/A003

ENQUIRY NO.  
77/11/6283/RSB

### M1.0 PROJECT INFORMATION

1	Owner/Purchaser (or customer)	GUJRAT STATE ELECTRICITY CORPORATION LIMITED (GSECL)
2	Owner's Consultant	TCE Consulting Engineers Limited, Bangalore.
3	Project Title	2X250MW Imported Coal Based TPP Sikka Extension Unit # 3 & 4
4	Project location	Sikka, Distt: Jamnagar,Gujrat
6	Transport facilities	State Highway (SH-25)
7	a) Nearest Railway station /Guage b) Name of Railway	Okha /Broad gauge Western Railway
8	Nearest Harbour	Okha and Vadinar
9	Ambient Air Temperature	5-50 Deg Centigrade
10	a) Maximum dry bulb temperature with corresponding relative humidity b) Design temperature for electrical equipment/devices	50 degree C (corresponding RH figure not available) 50 degree C
11	Maximum relative humidity	82%
12	Rain Fall a) Annual average b) Maximum Intensity sustained for 24 hrs. c) Period of rain fall	500mm 75mm June -October



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GSECL 2X250 MW TPP SIKKA,  
EXTENSION UNITS 3 & 4  
ENQUIRY SPECIFICATIONS FOR ASH SLURRY  
PUMPS

SPECIFICATION NO.  
IS-1-07-2006/A003

ENQUIRY NO.  
77/11/6283/RSB

### 1.01.00 PROJECT

Sikka thermal power project consists of two stages. Under stage-I, two generating units each of 120 MW capacities are in operation. Under extension unit-3&4, 2 no. generating units each of 250 MW capacity are proposed to be added along with their auxiliaries and other facilities.

### 1.02.00 LOCATION

The site is located 32 kms from Jamnagar town, Village Sikka is in district Jamnagar of Gujarat. The site is connected to State Highway (SH-25) by a 5 Kms long all weather road through Sikka village.

Jamnagar – Okha broad gauge section of Western railway is passing through this area at a distance of about 12 kms. from Sikka. There is a 14 Kms. long railway spur connecting Sikka from Kanalus Junction, which is connected to Viramgam and Okha. The length of railway access spur to Sikka TPS is only one km. Okha and Vadinar Port is the nearby harbours.



**BHEL-ISG  
BANGALORE**

**GSECL 2X250 MW TPP SIKKA,  
EXTENSION UNITS 3 & 4  
ENQUIRY SPECIFICATIONS FOR ASH SLURRY  
PUMPS**

**SPECIFICATION NO.  
IS-1-07-2006/A003**

**ENQUIRY NO.  
77/11/6283/RSB**

**SCOPE OF SUPPLY, WORKS**



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BANGALORE

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## INTRODUCTION

The specification has been prepared for supply of Ash Slurry Disposal Pump for 2X250 MW TPP, Extension unit 3&4 for GSECL, SIKKA for which TCE Consulting Engineers Limited, Bangalore is the consultant for the customer GSECL. BHEL is the principal contractor who is responsible for the establishment of the power project for extension of unit 3 & 4.

Industrial Systems Group (ISG) of BHEL located at Bangalore will be executing the Ash Slurry Disposal System of the 2X250 MW, GSECL Extension unit 3 & 4.

### 3.00.00 SCOPE OF SUPPLY & WORKS:

The scope of supply and works includes design, manufacture, supply, testing at shop, inspection at manufacturer's work, delivery at site and supervision of erection & commissioning, PG test & handing over of **ash slurry pumps, required V-belt, belt guard, pump and motor side pulleys, Companion flanges with nuts and bolts for pump suction and discharge, pump suction and discharge gaskets, common base frame for slurry pump and motor along with alignment nuts and bolts, foundation bolts with nuts and washers, equipment mounting bolts for pumps and motor, and shaft key for the pump etc.** as per this Specification and Data Sheet enclosed herewith. Only drive motors shall be supplied by BHEL as per requirement/ suggestion of pump manufacturer requirement directly to site. Pump manufacturer shall make their own arrangement for testing of slurry pumps at shop floor with test motor.

Items and accessories which are not mentioned specifically but are essential for sound performance of the equipment shall be supplied by bidder without any cost implication to BHEL.

**Note:** Bidder to note that vendor's responsibility doesn't limit only to the supply of Slurry pump at site. But, also to depute a concerned E&C engineer who shall be made available to our AHP package vendors at respective project sites for system integration with the ash handling plant as and when required.



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**SPECIFICATION FOR ASH SLURRY PUMP:**

3.01	Type	:	Horizontal Centrifugal Ash Slurry Pump.
3.02	Applicable codes	:	ISO 1940 Balancing ASTM A 532 Grade ISO 9906-1999 Performance test Any other relevant International / DIN standard.
3.03	Performance Parameters	:	<b>Ash Slurry pump</b> <b>For SIKKA TPP Unit 3&amp; 4 ( 2x 250MW)- AHP</b>
i)	Capacity	:	618 M <sup>3</sup> /h.
ii)	Rated Head	:	At 36 MWC
iii)	Quantity	:	2 Nos. (1W+1SB)
3.04	Duty	:	To be designed for continuous duty
3.05	Design Conditions	:	Suitable for 40 mm size ash clinker and 60 deg C temperature for ash slurry
3.06	Site Data	:	Refer Annexure-I
i)	Capacity	:	900M <sup>3</sup> /h
ii)	Rated Head	:	At 47 MWC
iii)	Quantity	:	2 Nos. (1W+1SB)
3.04	Duty	:	To be designed for continuous duty
3.05	Design Conditions	:	Suitable for 40 mm size ash clinker and 60 deg C temperature for ash slurry
4.00	Material of Construction/ design features	:	MOC of all parts shall be suitable for sea water application.
i)	Casing	:	Outer casing shall be cast steel to ASTM - A216 OR spheroidal graphite ductile iron to ASTM - A536, 65-45-12. Inner casing (volute liners) shall be of chrome nickel cast iron (composition to NI hard-IV) of 550 - 650 BHN.

 <b>BHEL-ISG</b> <b>BANGALORE</b>	<b>GSECL 2X250 MW TPP SIKKA,  EXTENSION UNITS 3 &amp; 4  ENQUIRY SPECIFICATIONS FOR ASH SLURRY  PUMPS</b>	<b>SPECIFICATION NO.</b> <b>IS-1-07-2006/A003</b>  <b>ENQUIRY NO.</b> <b>77/11/6283/RSB</b>
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			<b>OR</b> 24 % Chromium Cast Iron of Hardness 550-650BHN.
ii)	Impeller ( <b>NON CLOG TYPE</b> )	:	Chrome nickel cast iron (composition to NI hard-IV) of 550 – 650 BHN.  <b>OR</b> 24 % Chromium Cast Iron of Hardness 550-650BHN.
iii)	Shaft	:	EN-8
iv)	Shaft sleeve	:	SS 316L
v)	Efficiency	:	<b>Minimum 70 %</b>
vi)	Pump impeller tip speed		<b>Not to exceed 28 m / sec</b>
vii)	Pump Impeller rpm		<b>Maximum 1000 rpm.</b>
	GD <sup>2</sup> Value		
<b>Drive Detail</b>			
	Recommended motor rating		
	Type of drive		
<b>5.00</b>	<b>Design &amp; Construction Features:</b>		
	The ash slurry sump geometry and configuration shall be such as to minimize Ash settlement, formation of vortices and air entrainment in the slurry as this may affect the operation of the slurry disposal pumps.		
	All centrifugal pumps shall have a drooping characteristics curve, with the head continuously increasing with decreasing flow to maximum head at zero Row and the pumps shall preferably be non-overloading type beyond rated duty point		

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 <p><b>BHEL-ISG BANGALORE</b></p>	<p align="center"><b>GSECL 2X250 MW TPP SIKKA, EXTENSION UNITS 3 &amp; 4 ENQUIRY SPECIFICATIONS FOR ASH SLURRY PUMPS</b></p>	<p><b>SPECIFICATION NO. IS-1-07-2006/A003</b></p> <p><b>ENQUIRY NO. 77/11/6283/RSB</b></p>
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	<p>The characteristics curves of each set of pumps shall match each other for equal load sharing in case of parallel operation and such pumps shall be identical and all parts shall be fully interchangeable. Standard type pumps with a proven record of reliability shall only be provided,</p>
	<p>Complete technical data from pump supplier regarding head drop v/s mixture concentration and clearance diagram for impeller and casing and complete information shall be furnished</p>

<b>6.00</b>	<b>ACCESSORIES:</b>
	Foundation bolts and nuts for pumps and motors
	Foundation bolts and nuts for base plates
	<ul style="list-style-type: none"> <li>- Lubrication fittings as necessary for proper and easy lubrication of the equipment</li> </ul>
	<ul style="list-style-type: none"> <li>- An Anchor Bolts, Sleeves, Inserts, Lifting Lugs, Eye Bolts etc.</li> <li>- All anchor bolts, foundation plates, sleeves, nuts inserts etc. to be embedded in concrete for the equipment to be supplied .The length of foundation bolts shall be liberally sized to reach lo below the reinforcement level.</li> </ul>

<b>7.00</b>	Vendor shall furnish the following along with the offer.
7.01	Duly filled in Bidder's Data Sheet.
7.02	Catalogues for the offered model.
7.03	Minimum 2 Nos. installations of similar type/rating of Pumps in Thermal Power Plant to be indicated by the bidder in their offer.

<b>8.00</b>	<b>Successful bidder shall furnish the following after receiving L.O.I.</b>
8.01	Sectional assembly drawings complete with bill of material.
8.02	GA drawing of Ash Slurry Pump.
	Data sheet
8.03	Performance curve
8.06	Operational and maintenance manual.
8.07	Lubrication schedule.



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8.08	QAP for BHEL/Customer/customer's Consultant approval.
8.09	Painting Schedule.
8.10	Any other relevant document which may be felt necessary during execution of Contract.

## 9.0 TECHNICAL DATA SHEET TO BE FILLED BY THE BIDDER

Sl.No.	Description	Ash Slurry Pump
<b>1.00.00</b>	<b>GENERAL</b>	
1.01.00	Make	:
1.02.00	Model	:
1.03.00	Pump Type	:
1.04.00	QTY	:
1.05.00	Application	:
1.06.00	Specific Gravity	:
1.07.00	Temperature	
1.08.00	Head	
1.09.00	Suction condition	
1.10.00	Pump speed	
1.11.00	Impeller Dia	
1.12.00	Efficiency	
1.13.00	BKW	
1.14.00	Shaft sealing	
1.15.00	NPSHR	
<b>2 Material of Construction</b>		
2.1.00	Casing	
2.2.00	Impeller	
2.3.00	Back Liner	
2.4.00	Shaft	
2.5.00	Shaft sleeve	
2.6.00	Bearing detail	



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2.7.00	Sealing water Requirement		
2.8.00	GD <sup>2</sup> Value		
2.9.00	Recommended motor rating		
2.10.00	Motor make		
2.11.00	Type of drive		
2.12.00	Motor speed		
2.13.00	Noise level		
	<b>DRIVE SYSTEM DETAILS</b>		
2.14.00	Recommended Motor rating, kW		
2.15.00	Motor Speed, rpm (Syn.)		
2.16.00	Type of Coupling between Motor Shaft and Equipment Shaft		

<b>10.00.00</b>	<b>PAINTING:</b>		
10.01.00	Please indicate type of paint used / total paint DFT / Final RAL color shade of outside surface.	:	

**12.0 INSPECTIONS & TESTING:**

Inspection and testing shall be carried out in presence of BHEL-ISG and customer (GSECL)/ customer's consultant / representatives. The vendor shall furnish inspection & testing procedure & QAP for due approval from BHEL/Customer/customer's Consultant. Vendor is responsible for getting the Inspection & Test procedures and Quality Assurance Plans approved from the main Customer. Inspection & Test procedure, QAP will be furnished by vendor along with their offer.

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All Quality plans shall be submitted in soft and hard copy (5nos.) for BHEL/Customer/customer's Consultant approval. As per the hold points mentioned in QAP, Vendor shall submit the inspection calls by E-mail with clear notice of 10-15days followed by hard copy to be sent by courier so as to reach BHEL desk within 3-4 days from the date of E-mailing of the document. BHEL shall inform within 7-10 days of receipt of inspection call whether inspection shall be carried out or waived off. After completion of inspection the material will be treated as cleared for dispatch by BHEL/Customer/customer's Consultant inspector, if inspection is OK as observed by Inspection Engineers.

Vendor shall maintain strict quality norms and standards for Bought out/ self manufactured items through its wide network of quality departments throughout the country who carryout stage and final inspection of the product as per quality standards agreed by engineering/quality specialists.

**13.0 TECHNICAL INPUTS TO BE FURNISHED/ CONFIRMED ALONG WITH THE OFFER:**

Following documents are to be necessarily enclosed for each type of Pump by the Bidder as a part of the Offer:


- a) Manufacture's QAP shall be submitted for approval.
- b) GA drawing.
- c) Sectional assembly drawings complete with bill of material.
- d) Performance Curve.
- e) GD<sup>2</sup> Value of all rotating Parts for verifying the selection of Motor.
- f) Torque Speed Curve for verifying the selection of Motor.
- g) Descriptive Write – up of Lubrication System.
- h) Bidder shall submit signed copy of all the pages of enquiry specification.

**14.0 OPERATION & MAINTENANCE MANUAL:**

O & M manual shall contain the following.

- 1. Principle of operation of the equipment.
- 2. Details of preventive / repair maintenance for equipment and accessories used.
- 3. Details about the general specifications, design capacities of equipment, their function.

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4. Equipment Bidder's address, telephone nos., contacts person details to be furnished.
5. Required Dismantling devices, tools etc.,
6. List of DO's and DO NOT's.
7. Test certificates.
8. All drawings.
9. Calculations.
10. Storage and erection instructions.
11. Proper procedures & sequence of operation.
12. Details of consumable.

Note: i) All manual shall be supplied in proper bound books or in folders, preferably in A4 size.

ii) The volume and section number shall be intimated by the Bidder.

iii) Prospective Bidder will submit the regular progress reports for self manufacturing & their bought out items equipment ordering /manufacturing status, drgs status once in fifteen days.

iv) Bidder shall directly send O&M Manuals to BHEL-ISG HQ as per distribution schedule given below in Clause – 8.0 with covering letter copy to Project Manager, BHEL-ISG, Bangalore. BHEL Project Manager shall co-ordinate and ensure submission to Customer/customer's Consultant for the equipments as per BHEL standard practice.

#### **15.0 DISTRIBUTION OF DRGS/ DOCUMENT DURING DETAIL ENGINEERING:**

##### a) Distribution of drawings/ documents

##### i) For Approval and Information category drgs :

Initial submission –9copies + Soft copy (AutoCAD version)

Commented copies back to the sender- 1 nos.

Resubmission of revised drg –9 copies + Soft copy (AutoCAD version).

Final approved drgs ( except scheme drgs) – 15 copies,


Design documents –Bidder shall submit soft copies and 6 no. hard copies

##### ii) Erection Drgs

5 copies to BHEL HQ.

##### iii) Instruction Manuals/ O & M Manuals

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5 hard bound copies to BHEL HQ and soft copy also.

iv) Test Certificates

5 copies to BHEL HQ

- b) BHEL / Customer / customer's Consultant shall review and furnish their comments/approval within 15 days from the date of receipt of drawings/documents. M/s BHEL/Customer/customer's Consultant will furnish Comments /approval to the Vendor after review of each drawing/document.
- c) Considering the criticality of the project requirement, all out efforts shall be made to re-submit the drawings/documents as early as possible. However, the commented drawings shall be re-submitted by successful Bidder within 12 days from the date of receipt of commented drawings/ documents from BHEL/Customer/customer's Consultant.
- d) Drawings approved under Cat-2 shall hold good for construction/execution subject to taking care of comments of M/s BHEL/Customer/customer's Consultant.
- e) In case, successful Bidder does not agree with any specific comments, successful Bidder shall furnish the explanation for the same to M/s BHEL/Customer/customer's Consultant within the framework of contractually agreed specification for consideration, acceptance and formal approval under Category 1, as per specifications.
- f) For Category 3, BHEL/Customer/customer's Consultant will send two copies of marked up drawings for further action by successful Bidder.
- g) Final distribution of copies of all Category 1 approved drawings/documents shall be submitted by successful Bidder to BHEL/Customer/customer's Consultant as per distribution schedule given above.

**16.0 COMMISSIONING SPARES:**

The required commissioning spares shall be included in bidder's scope. List for part of Commissioning spares for PUMP shall be furnished separately along with offer for reference of BHEL.

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**VOLUME - 3****PRICE FORMAT FOR AHP- 2 x 250 MW SikkaTPP UNIT # 3 & 4**

PROJECT - GSECL,2 x 250 MW SikkaTPP UNIT # 3 &amp; 4

**REV.-00**

ITEM - SUPPLY OF ASH SLURRY PUMPS

ENQUIRY NO:- 77/11/6283/RSB

ALL PRICES-IN INDIAN RUPEES

SL. NO.	Description	Qty	Unit	TOTAL PRICE ( In Rupees)	
				ALL INCLUSIVE "FOR SITE PRICE"	
				IN FIGURES	IN WORDS
A	<b>SUPPLY:</b>	1	LOT		
	Design, engineering, manufacture, testing, inspection at manufacturer's works and supply of ash Slurry Pumps of capacity 618 m3/ Hr and head 36 MWC ,with required V-belt, belt guard, pump and motor side pulleys, Companion flanges with nuts and bolts ,for pump suction and discharge, pump suction and discharge gaskets, common base frame for slurry pump and motor along with alignment nuts and bolts, foundation bolts with nuts and washers, equipment mounting bolts for pumps and motor, and shaft key for the pump etc.				
A1	Bidders to indicate here below the ex-works price with rate & amount of various taxes, duties, Freight included in A above				
1	Total Ex- works Price For Supply				
2	Excise Duty including Cess @ (indicate % age)				
3	CST @ (indicate % age)				
4	VAT @ (indicate % age)				
5	Any other tax if applicable @ (indicate % age)				
6	Lumsum Freight charges				
	Sub Total A1				

SL. NO.	Description	Qty	Unit	TOTAL PRICE ( In Rupees)	
				ALL INCLUSIVE "FOR SITE PRICE"	
				IN FIGURES	IN WORDS
<b>B</b>	<b>SUPPLY:</b>	1	LOT		
	Design, engineering, manufacture, testing, inspection at manufacturer's works and supply of Ash Slurry Pumps of capacity 900 m3/ Hr and head 47 MWC, with required V-belt, belt guard, pump and motor side pulleys, Companion flanges with nuts and bolts ,for pump suction and discharge, pump suction and discharge gaskets, common base frame for slurry pump and motor along with alignment nuts and bolts, foundation bolts with nuts and washers, equipment mounting bolts for pumps and motor, and shaft key for the pump etc.				
B1	Bidders to indicate here below the ex-works price with rate & amount of various taxes, duties, Freight included in B above				
1	Ex- works Price For Supply				
2	Excise Duty including Cess @ (indicate % age)				
3	CST @ (indicate % age)				
4	VAT @ (indicate % age)				
5	Any other tax if applicable @ (indicate % age)				
6	Lumsum Freight charges				
	Sub Total <b>B1</b>				
<b>C</b>	<b>SUPERVISION OF ERECTION &amp; COMMISSIONING</b>	1	LOT		
C1	<b>CHARGES FOR SUPERVISION OF ERECTION &amp; COMMISSIONING:</b> To depute concerned specialist who shall be made available to BHEL's AHP package vendors at project site during system integration with the ash handling plant (2 trips of 8 man days each).	Mandays	16		
1	Service Tax including Cess				
2	WCT				
3	Any other tax if applicable				
	Sub Total <b>C1</b>				
	<b>TOTAL (A+B+C)</b>				

SL. NO.	Description	Qty	Unit	TOTAL PRICE ( In Rupees)	
				ALL INCLUSIVE "FOR SITE PRICE"	
				IN FIGURES	IN WORDS
NOTE:					
NOTE:					
1- Above base offer is for the scope of supply, supervision of erection, and commissioning and system integration with AHP system as per BHEL's enquiry specification, discussions, Pre- Bid MOMs and communications to vendors on the turnkey basis. Details of scope of work, supply and responsibilities included in the above quoted price are for completion of supply and supervision of compressor E& C during system integration with AHP system (including conducting the performance guarantee test).					
2- Above quoted price is inclusive of all the equipments & items, accessories, hardware, foundation Bolts, Gaskets, Couplings,Paintings etc. for installing slurry Pumps for slurry transportation.					
3 - Price to be indicated in Price format - Rev 00 only and it should be sent in sealed envelop to BG -1B/ MM. Unpriced price format duly signed with seal to be sent to Project Engineering and MM Group by Fax/ e-mail confirming that price bid as per price format for all items with Taxes, Duties, Freight etc.					
4 - In case of discrepancy between 'prices in figures' and 'price in words' in the price format, the price entered in words shall prevail and shall be taken for tender evaluation and finalization of the award of work.					
5 - Above price is inclusive for all contractual obligation including submission of drawings,documents,O&M manual,erection manual etc in required number of hard and soft copies as per enquiry specification,vendor offers and all recorded discussions etc.					
6 - The rates for supervision shall include travelling expense upto site and stay at site.					
7 - The rate for supervision for erection and commissioning shall be valid till end of contract i.e. 10.04.2014.					
				Signature of the Authorised Person of the bidder company	
	Date:			Seal	
	Place:				