

**BHARAT HEAVY ELECTRICALS LIMITED**CORPORATE RESEARCH & DEVELOPMENT DIVISION
VIKASNAGAR, HYDERABAD - 500 093, INDIA

PHONES:23774494 (EXT:9804)

FAX : 91 40 23770698

RD:DP:MPX:F-04

ENQUIRY

Ref: 571209951

Date 30-03-2013

Enquiry for **MPC software**

Enquiry No:571209951 Enquiry Date : 30-03-2013 Due Date: 30-04-2013 Indicative Delivery Date : 15-11-2013

Sl.No	Item Description	Unit	Qty
1	Model Predictive Control Software	NO	1

Please submit your quotation for the above material in sealed cover superscribed with enquiry no, enquiry date and due date subject to our enclosed terms and conditions. The quotations shall reach us on or before the due date by 12 noon. The tenders can also be dropped in the tender box kept at the security gate,BHEL R&D. In case you are not in position to submit the offer,please send reply suitably specifying the reasons.

Sl.No	Description	Document Ref.
01	Enquiry, General Terms & Conditions, Commercial Terms & Conditions etc.	Volume - 1
02	Technical specifications, Scope of Supply etc.	Volume - 2

P Bhaskara Rao
Engineer
pbrao@bhelrnd.co.in



ENQUIRY & QUALIFYING CRITERIA

Volume - 1
Enquiry No
571209951

MPC software

1	Tendor inviting officer / Authority, Designation and Address	Additional General Manager(MM) BHEL R & D, Vikas Nagar (Near Balanagar), Hyderabad -500093
2	Item Description - Qty	1) Model Predictive Control Software - 1 NO
3	Enquiry Reference no.	571209951
4	Indicative Delivery Date	15-11-2013
5	Due date, Time and place for submission of tender	30-04-2013 upto 12 noon. Sealed Quotations shall be addressed to AGM(MM), BHEL R & D Division, Vikas Nagar (Near Balanagar), Hyderabad AP,India Pin - 500 093 Quotations can also be deposited in the Tender box located at Security Gate of BHEL R & D BHEL shall not be responsible for any postal/courier delay.
6	Place, Date and time of Tech.Bid opening	Tender Opening Cell (Sangam) BHEL R & D Office. 30-04-2013, 2 PM
7	Mode of Submission of Tender	Please submit your offer in one common sealed cover containing two parts in separate sealed covers as detailed below. 1. First cover shall contain: a. Technical & Commercial bid b. Filled in Commercial Compliance Statement (mandatory) c. Copy of price-bid with price(s) cells blank (un-priced price bid) 2. Second cover shall contain price bid.Price bid containing price quotes ,installation and /or commissioning charges shall be spelt out clearly taking into account total charges rather than quoting vaguely such as charges per man-day or charges per engineer per day etc. If the price bid was found later to be different from the unpriced price bid format in any way,the offer will be rejected summarily.The rates shall be quoted both in figures and in words.



GENERAL TERMS & CONDITIONS (GTC)

Volume - 1
Enquiry No
571209951

MPC software

SL.No.	Clause	BHEL REQUIREMENT
1	General	<p>a. All offers must include name of the contact person, phone no/mobile no, Fax no, email-id. Unsigned offers are liable for rejection.</p> <p>b. We, BHEL R&D, is registered with Department of Scientific and Industrial Research (DSIR) for the purpose of availing Customs Duty exemption in terms of Government Notification no.24/2007-Customs dated 01-Mar-2007 & Central Excise Duty Exemption in terms of Government Notification No. 16/2007-Central Excise dated 01-Mar-2007 as amended from time to time. Hence suppliers are requested to submit their bids clearly stating applicable taxes/duties.</p> <p>c. Taxes & Duties quoted will be taken for cost evaluation & order placement and no change will be entertained later except in the case of changes made by the government. In case any Taxes/ Duties exempted, a self declaration for the same may be attached to the offer. Changes in taxes and duties because of the changes in turn over etc will be to supplier's account.</p> <p>d. Where ever vendor registration form and EFT details have been submitted earlier, the same need not be submitted again unless there is a change.</p> <p>e. BHEL R&D do not issue 'C' form .</p> <p>f. L1 status shall be decided on Cost to BHEL Basis.</p>
2	Foreign Suppliers	<p>BHEL will deal directly with foreign vendors, where ever required, for procurement of goods.However, if the foreign principal desires to avail of services of an Indian agent,then foreign principle should ensure compliance to regulatory guidelines which require mandatory submission of agency agreement containing agency commission.</p> <p>Any supplier(Agents/distributors/representatives) desires of quoting imported goods/services,they should submit the quote in foreign currency along with agency agreement copy,failing which their offer is liable for rejection.In case of non submission of agreement copy,the pricipal should submit quotation to BHEL directly.Foreign supplier will also indicate in their offer Indian agent's name,if any, address and percentage of agency commission out of the quoted price.</p> <p>Fully owned Indian Subsidiaries/ditributors of Foreign Companies shall quote in Foreign Currency on FOB basis only.</p>
3	Late Tenders	Tenders received after due date/time(12:00hrs) wil not be considered
		<p>(a) If, in the price structure quoted for the required goods/ Services/ works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.</p>

4	Discrepancy in words and figures	<p>(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and</p> <p>(c). If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (a) and (b) above.</p> <p>(d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.</p>
5	Two Part bid clarifications	In the case of Two-part bid, the vendor should furnish technical and commercial clarifications, if any, within stipulated time mentioned, failing which, it will be construed that the vendor is not interested in the tender and BHEL shall not consider the offer for further evaluation.
6	Price Impacts	In the event of any bidder, after finalizing the technical specifications and scope of supply, opting to revise their original bid, they have to submit the Price-Impact only. The Original price bid along with Price-Impact bid shall be opened during price bid opening. Unsolicited price impacts will not be considered.
7	Price bid evaluation	All offers in price bid opening or reverse auction shall be evaluated in Indian currency based on unit price, packing & forwarding, taxes/duties, freight charges if any, exchange rate. Loading due to non-acceptance of our standard commercial terms will be evaluated as per the LOADING FACTORS form as enclosed along with the enquiry. The exchange rate declared by State Bank of India under TT Selling rate on the technical bid open date shall be adopted for evaluating foreign currency bids.
8	Packing	The supplier shall be responsible for the goods being properly and adequately packed so as to prevent any loss, damage or deterioration during transit.
9	Withdrawal	In case the supplier withdraws their offer before placement of order, BHEL reserves the right not to send next enquiry(ies). In case the supplier withdraws the quotation after its acceptance by BHEL or fails to supply the goods as per the terms and conditions of contract, or at any time repudiated the contract wholly or in part, BHEL shall be at liberty to cancel the Purchase Order and to recover from the supplier the extra cost and other loss, incidentals due to the breach of contract on the part of the supplier through risk purchase.
10	Risk Purchase	In case of default/late delivery, BHEL reserves the right to make alternate arrangement for procurement at suppliers risk and cost.
11	Banned List	The offers of the bidders who are in the banned list and the offers of the bidders who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website www.bhel.com .
12	Reverse Auction	BHEL reserves the right, to procure above items through reverse auction. BHEL reserves the right to reject the offer, in case of suppliers non-acceptance to reverse auction.
		Order will be placed on overall L1 basis. Vendors should quote for

13	Over All L1	all items, otherwise the offer will be rejected.
14	Destination	Indian Vendors: Destination shall be Stores,BHEL R&D,Hyderabad. Foreign Vendors: BHEL R.O.D Office, Mumbai, India.
15	Arbitration	Subject to the jurisdiction of Hyderabad/Secunderabad,Andhra Pradesh,India in respect of any suit or other legal proceedings relating this contract.
16	Inspection	On receipt, the goods shall be subjected to inspection and our decision regarding the acceptability of the goods shall be final and binding on the suppliers.
17	Micro Small Enterprises (MSEs)	In case the supplier belongs to MSEs (Micro Small Enterprises), Registration copy in this respect shall be submitted along with the offer.Further if MSEs are owned by the Scheduled Caste or the Scheduled Tribe entrepreneurs the same may be intimated. The following are the benefits for the MSEs. 1.MSEs are given tender documents free of cost and are exempted from payment of earnest money (EMD). 2.In tender, participating MSEs quoting price within price band of L1+15% shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSE shall be allowed to supply up to 20% of total tendered value. In case of more than one such MSE, the supply shall be shared proportionately.

Signature of the bidder with Seal & Date



COMMERCIAL TERMS & CONDITIONS (CTC)

Volume - 1
Enquiry No
571209951

MPC software

SL.No.	Clause	BHEL REQUIREMENT	SUPPLIERS ACCEPTANCE / REMARKS
1	Validity of Offer	90 days from date of techno-commercial bid opening.	
2	Price basis	<p>The prices shall be firm for entire period of contract.</p> <p>The suppliers shall indicate packing and forwarding charges, if any, separately.</p> <p>All foreign suppliers shall quote the lowest prices on 'FCA-Nearest International Airport' basis. An amount of 3% on basic value towards freight and insurance will be added for cost comparison.</p> <p>All Indian suppliers shall quote the lowest prices on 'free delivery at BHEL R&D Stores or FOR destination' basis. In case of Ex-Works, an amount of 3% on basic value towards freight and insurance will be added for cost comparison.</p>	<p>a. For Destination</p> <p>b. Ex-Works</p>
3	LD Clause	<p>Any delay beyond delivery date will attract penalty @0.5% of the undelivered portion of order value per week of delay and pro-rata for part of week subject to maximum of 10% of undelivered portion of order value. In case of non acceptance to this LD Clause, 10% of basic material cost will be loaded on the quoted prices while cost comparison. (Please refer the enclosed 'Loading Factors' sheet).</p>	
4	Payment Terms	<p>a) For Indian Offers : BHEL standard payment term is "100% payment along with taxes by EFT/RTGS within 30 days of receipt and acceptance of material at BHEL R&D Stores, Hyderabad". For other payment terms there will be a loading on the offer as mentioned in our 'Loading Factors' sheet which is enclosed to this enquiry.</p> <p>b) For Foreign Offers : BHEL standard payment term is "100% Invoice value by wire transfer within 30 days of receipt and acceptance of material at BHEL R&D</p>	

		Stores,Hyderabad". For other payment terms there will be a loading on the offer as mentioned in our "Loading Factors" sheet which is enclosed to this enquiry.All bank charges inside India shall be to BHEL account and outside India shall be to supplier's account.	
5	Freight & Insurance	Insurance will be arranged by BHEL in case of Ex-Works as well as FCA / FOB basis supplies.In such cases ,an amount of 3% towards freight and insurance will be added for cost comparision.	
6	Agency Agreement	<p>Guidelines regarding dealing with indian agents of foreign suppliers</p> <ol style="list-style-type: none"> 1. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods.However, if the foreign principal desires to avail of services of an indian agent,then the foreign principal should ensure compliance to regulatory guidelines which require mandatory submission of agency agreement. 2. IT shall be incumbment on the indian agent and the foreign principal to adhere to the relevant guidelines of government of india, issued from time to time. 3. The agency agreement should specify the precise relationship between he foreign oem services to be rendered by agent / associate, whether general in nature or in relation to the particular contract, must clearly stated by the foreign supplier / indian agent.Any payment, which the agent / associate receives in india or abroad from the oem, whether as commission or as a general retainer fee shall be brought out in record in the agreement and be made explicit in order to encurse compliance to the laws of the country. 4. Any agency commission to be paid by BHEL to the indian agent shall be indian currency. 5. Whenever indian agents are representing on behalf of their principals the relevant authorization letter and agreement copy to be enclosed along with technical bid to consider the offer. 	
		Suppliers are requested to quote for	

7	Delivery Date	<p>the delivery period mentioned in the enquiry. However suppliers can quote best possible delivery, in case it is not possible to meet the delivery requirement of BHEL.</p> <p>However BHEL reserves the right to reject the offer before price bid opening in case of not meeting the delivery requirements of BHEL.</p>	
8	Taxes and duties	<p>All Indian suppliers shall clearly mention current sales tax/VAT, Excise duty and Service Tax etc, if any, payable in addition to the quoted price and indicate applicable rates/percentage, item-wise clearly. The vendors should mention applicable Registration Number(s) specifically in their quotation. The suppliers are requested to submit their bids clearly stating applicable taxes and duties. The quoted taxes/duties will be taken for cost evaluation and order placement and no change will be entertained later except in the case of changes made by the government.</p>	
9	Weight and Packing Dimensions.	<p>The Supplier shall indicate the shipping weight (Kgs) and dimensions (L x W x H in cms) clearly along with offer.</p>	
<p>Note : 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 bidders entered else where in their offer shall not be considered and are liable for rejection.</p>			

Signature of the bidder with Seal & Date



ITEM SPECIFICATIONS

Volume - 2
Enquiry NO
571209951

MPC software

SL.No.	Item			
G	General Specifications			
	sl no	Descriptions	BHEL Specifications	Vendor Specifications/ Deviations
	1	Model Predictive Controller software for MIMO systems.	As per attached Annexure -1	
	Sub Contracting	In case of further subcontracting of BHEL order or part there of is envisaged by supplier, the same can be done after obtaining written permission from BHEL. However it shall not absolve the responsibility of fulfilling BHEL purchase order requirements.		

* Vendors are advised to write specifications in detail and not to write like 'Complied/ Yes / No ' etc. in specifications.

Signature of the bidder with Seal & Date

LOADING FACTORS



NOTE : IN CASE OF DEVIATION TO BHEL TENDER SPECIFIED TERMS, LOADING FACTOR INDICATED IN FOLLOWING TABLE WILL BE APPLIED TO QUOTED PRICE WHILE EVALUATING THE LOWEST QUOTE ()

A. FOR INDIGENOUS PURCHASES					
SLNO	SCOPE	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS
A.1	SUPPLY OF EQUIPMENT	PAYMENT TERMS	100% PAYMENT, WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF MATERIAL	SAME	NIL
				PAYMENT AGAINST PROFORMA INVOICE / DESPATCH DOCUMENT OR CASH ON DELIVERY (COD) / CASH AGAINST PROOF OF DESPATCH	11% INTEREST ON THE TOTAL PO VALUE FOR ONE MONTH
				ADVANCE PAYMENT WITH BANK GUARANTEE	11% INTEREST ON THE TOTAL VALUE FOR OFFERED DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH
				PART ADVANCE PAYMENT WITH SUPPORTING BANK GUARANTEE AND BALANCE WITH IN 30 DAYS	11% INTEREST ON ADVANCE FOR OFFERED DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH
				PART ADVANCE PAYMENT WITH SUPPORTING BANK GUARANTEE AND BALANCE ON RECEIPT OF MATERIAL	11% INTEREST ON ADVANCE FOR OFFERED DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH AND 11% INTEREST ON BALANCE AMOUNT FOR ONE MONTH
A.2	SUPPLY OF EQUIPMENT INCLUDING E&C	PAYMENT TERMS (THE SUPPLIER MUST SUBMIT A PERFORMANCE BANK GUARANTEE (PBG) FOR 10% OF THE BASIC VALUE OF THE ORDER VALID FOR WARRANTY PERIOD.)	90% PAYMENT, WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF MATERIAL . BALANCE 10% WITH IN 30 DAYS OF COMPLETION OF E&C AND ON SUBMISSION OF PERFORMANCE BANK GUARANTEE (PBG) FOR 10% OF BASIC PO VALUE.	SAME	NIL
				100% PAYMENT WITH IN 30DAYS AFTER COMPLETION OF SUPPLIES AND ERECTION AND COMMSIONING	NIL PBG WILL NOT BE INSISTED FROM THE SUPPLIER)
				90% PAYMENT AGAINST PROFORMA INVOICE/ DESPATCH DOCUMENT OR CASH ON DELIVERY (COD) / CASH AGAINST DESPATCH AND BALANCE 10% WITH IN 30 DAYS OF E&C	11% INTEREST ON 90% OF THE VALUE OF PO FOR ONE MONTH
				90% PAYMENT AGAINST PROFORMA / DESPATCH DOCUMENT OR CASH ON DESPATCH (COD) / CASH AGAINST DESPATCH AND BALANCE 10% AFTER COMPLETION OF E&C	11% INTEREST ON TOTAL PO VALUE FOR ONE MONTH
				90% ADVANCE PAYMENT WITH BANK GUARANTEE AND BALANCE 10% WITH IN 30 DAYS OF E&C	11% INTEREST ON 90% OF THE TOTAL VALUE FOR DELIVERY PERIOD(ROUNDED OF TO THE NEAREST MONTH) + 1 MONTH
				PART ADVANCE (x%) PAYMENT WITH SUPPORTING BANK GUARANTEE AND (90 - x) % PAYMENT ON RECEIPT OF MATERIAL AND 10% PAYMENT WITH IN 30 DAYS AFTER E&C	11% INTEREST ON THE ADVANCE AMOUNT FOR THE DELIVERY PERIOD (ROUNDED OF TO THE NEAREST MONTH) + 1 MONTH AND 11% INTEREST ON (90-X)% PAYMENT FOR ONE MONTH
				PART ADVANCE (x%) PAYMENT WITH BANK GUARANTEE AND (90 - x) % PAYMENT ON RECEIPT OF MATERIAL AND 10% PAYMENT AFTER E&C	11% INTEREST ON THE ADVANCE AMOUNT FOR THE DELIVERY PERIOD (ROUNDED OF TO THE NEAREST MONTH) + 1 MONTH AND 11% INTEREST ON BALANCE AMOUNT

B. FOR FOREIGN PURCHASES (IMPORTED)					
SLNO	SCOPE	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS
B.1	SUPPLY OF EQUIPMENT	PAYMENT TERMS	AGAINST SIGHT DRAFT ON PRESENTATION OF DESPATCH DOCUMENTS VIZ INVOICE, AWB ETC TO OUR BANKERS (ALL BANK CHARGES INSIDE INDIA TO BHEL ACCOUNT AND OUTSIDE INDIA WILL BE TO THE SUPPLIER'S ACCOUNT)	SAME	NIL
				100% PAYMENT AFTER RECEIPT AND ACCEPTANCE OF MATERIAL AT BHEL R&D BY WIRE TRANSFER. (DESPATCH DOCUMENTS WILL BE SENT TO BHEL R&D DIRECTLY ALONG WITH BANK DETAILS)	NIL
				LC PAYMENT	11% INTEREST ON THE BASIC VALUE FOR ONE MONTH
				ADVANCE BY WIRE TRANSFER WITH BANK GUARANTEE	11% INTEREST ON THE BASIC VALUE FOR DELIVERY PERIOD + 1 MONTH
				PART ADVANCE (x%) PAYMENT WITH SUPPORTING BANK GUARANTEE AND BALANCE PAYMENT AFTER RECEIPT OF MATL	11% INTEREST ON THE ADVANCE AMOUNT FOR THE DELIVERY PERIOD+ 1 MONTH AND 11% INTEREST ON BALANCE AMOUNT FOR ONE MONTH
B.2	SUPPLY OF EQUIPMENT INCLUDING E&C	PAYMENT TERMS(THE SUPPLIER MUST SUBMITT A PERFORMANCE BANK GUARANTEE (PBG) FOR 10% OF THE BASIC VALUE OF THE ORDER VALID FOR WARRANTY PERIOD.)	90% PAYMENT WILL BE MADE WITH IN 30 DAYS FROM THE DATE OF RECEIPT OF MATERIAL ON ACCEPTANCE AND BALANCE 10% WITH IN 30 DAYS OF COMPLETION OF E&C AND ON SUBMISSIONOF PERFORMANCE BANK GUARANTEE FOR 10% OF BASIC VALUE)	SAME	NIL
				LC PAYMENT FOR 90% OF THE ORDER VALUE + 10% AFTER E&C WITH IN 30 DAYS	11% INTEREST ON 90% OF BASIC VALUE FOR ONE MONTH
				90% OF BASIC VALUE AS ADVANCE BY WIRE TRANSFER WITH BANK GUARANTEE AND BALANCE 10% AFTER E&C BY WIRE TRANSFER WITH IN 30 DAYS	11% INTEREST ON 90% OF THE BASIC VALUE FOR DELIVERY PERIOD + 1 MONTH
				x% OF TOTAL VALUE AS ADVANCE PAYMENT WITH BANK GUARANTEE AND BALANCE (I.E. 90-X)AFTER RECEIPT OF MATL BY WIRE TRANSFER AND 10% AFTER COMPLETION OF E&C	11% INTEREST ON THE ADVANCE AMOUNT FOR THE DELIVERY PERIOD+ 1 MONTH AND 11% INTEREST ON BALANCE AMOUNT OF 90% OF ORDER VALUE (I.E. 90-X%)
C. PERFORMANCE BANK GUARANTEE, PBG (COMMON FOR INDIGENOUS AND IMPORTS)					
C.1		PERFORMANCE BANK GUARANTEE	PBG FOR 10% OF THE BASIC PO VALUE SHALL BE FURNISHED IN BHEL PRESCRIBED FORMAT.)	IF NOT AGREED	10% OF THE BASIC MATERIAL COST
D. PENALTY (COMMON FOR INDEGENOUS & IMPORTS)					
D.1		LD CLAUSE	IN THE EVENT OF DELAY IN AGREED CONTRACTUAL DELIVERY, PENALTY OF 0.5% (HALF PERCENT) PER WEEK BUT LIMITED TO A MAX OF 10% VALUE OF UNDELIVERED PORTION OF BASIC MATERIAL COST WILL BE APPLICABLE	AGREED	NIL
				IF NOT AGREED	10% OF THE BASIC MATL COST
				IF AGREED FOR 5%	5% OF THE BASIC MATERIAL COST
				OTHER THAN THE ABOVE	10% MINUS THE AGREED MAX PERCENTAGE OF THE BASIC MATERIAL COST WILL BE LOADED.

AUTHORISATION LETTER FOR E-PAYMENT/ NEFT / RTGS
(PLEASE FILL UP THE FORM COMPLETELY IN CAPITAL LETTERS ON YOUR COMPANY LETTERHEAD ONLY)

Vendor Code (to be filled by BHEL)	
------------------------------------	--

Type of Request (Tick one)	NEW	CHANGE
1 Company Name		
2 Address		
3 City with PIN Code		
4 State		
5 PAN Number		
6 TIN/ VAT No.		
7 CST No.		
8 Service Tax No.		
9 Name of Contact Person		
10 Mobile number		
11 Ph. no. with STD Code		
12 Fax No. with STD Code		
13 Email ID		
14 Website (URL)		

BANK DETAILS FOR EFT / RTGS

1	Bank Name	
2	Branch	
3	Branch Code	
4	Branch Address	
5	Branch Phone No	
6	Account No.	
7	Account Type: SB/ Current/ other (Specify)	
8	MICR Code	
9	IFSC Code	

I, as an authorized representative / owner of the above named company, hereby state as under:

1. Enclosed here with a cancelled cheque in support of our company's bank details.
2. Authorize BHEL R&D Hyderabad, to electronically make payments to the designated bank account with bank charges, if any, to our account.
3. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
4. I hereby certify that the particulars given above are true, complete and correct.
5. This authority remains in full force until BHEL receives and acknowledge written notification requesting change or cancellation.

Date :

Authorised Signatory
Designation :

COMPANY SEAL



Bharat Heavy Electricals Limited
Corp. R&D DIVISION
VIKAS NAGAR,

RD:MPX:F-13

HYDERABAD- 500 093 (INDIA)**Ph: 040 - 23772704, Fax: 040 - 23770698, email: mpx@bhelrnd.co.in****VENDOR REGISTRATION FORM**

(Indigenous supplier)

[FORM TO BE SUBMITTED* BY THE BIDDER ALONG WITH TECHNICAL-BID]

Before filling, please refer to instructions on page-4

1.0 VENDOR PROFILE:

1.1 Name and address of the vendor:

Phone Nos.:Fax No.:Email: 1.

2.

1.2 Local representative name & address in Hyderabad/Secundrabad :

Phone Nos.:Fax No.:Email:Contact Person:Mobile No:**2.0 TYPE OF ORGANISATION:**

PROPRIETORSHIP	Company:	Sister Concern (mention vendor registration number of main organization)	
Partnership	CORPORATION	Small Scale Industry	ANY OTHER(Please specify)

In case of SSI unit, copy of registration to be enclosed. It is requested that MSME registration certificate to be enclosed

3.0 ANNUAL TURN OVER:

#	Year	Turn-Over, Rs.
1	Current Year(budgeted)	
2	Previous year (200 - 0)	
3	Prior Year (200 - 0)	

4.0 NAME AND ADDRESS OF THE BANKER:

- 4.1 Bank Name
 4.2 Branch name
 4.3 Account number
 4.4 Account Type
 4.5 MICR Code:
 4.6 IFSC Code(RTGS/NEFT):
 4.7 Bank Phone number(s),

Blank cheque, duly cancelled, to be enclosed.

Please note that all payments shall be made through Electronic clearance services to your above account against the orders executed, if any.

5.0 REGISTRATION PARTICULARS(relevant copies to be enclosed)

- 5.1 IT Permanent Account No.(PAN):
 5.2 State Sales Tax/VAT Registration No:
 5.3 Central Sales Tax Registration No:
 5.4 ED Registration No:
 5.5 Service Tax Registration No:
 5.6 PF Account No:
 5.7 Labour Licence No:
 5.8 ESI Account No:

6.0 CONTACT PERSON: S/Sri:

Designation:

Phone / Mobile No:

7.0 TOTAL NUMBER OF EMPLOYEES:

Graduates (Engr/Scientists/Mgmt/Fin.)	Consultants	Workers		
		Sup./Skilled	Semiskilled	Unskilled

8.0 LIST OF PRODUCTS/ SERVICES OFFERED:

#	Products/ Services	Capacity
1		
2		
3		
4		
5		
6		

9.0 REFERENCE LIST :

(Only recognized public and private sector companies, attach if printed copy available)

#	Customer	Volume / Year
1		
2		
3		
4		
5		

6		
7		

10.0 INFRASTRUCTURE / FACILITIES:

#	Facility (with specifications)	Age/ Year procured
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

11.0 REGISTRATION WITH OTHER BHEL UNIT/UNITS:

#	Unit	Registration No	Year
1			
2			
3			
4			

12.0 ANY OTHER INFORMATION :**DECLARATION:**

The information furnished above is true and authentic.

(CEO / PROPRIETOR)

SEAL:

DATE:

Note:

1. Registered bidders, having BHEL (R&D) registration no. or have submitted this format for registration, need not furnish this information again.
2. The competent authority reserves the right to accept or reject the registration.
3. Vendors approved for registration will be informed by mail / email, as convenient. A separate communication will be sent in case of non-registration also, citing reasons thereof.
4. BHEL reserves the right to take penal action as deemed fit if any of the information provided by the vendor(s) is found to be incorrect.
5. AGM, Head (MM) may be contacted for clarification/additional information on registration.

Instructions

1. Fill all items. Please mention N.A. for items/ clauses not applicable.
2. Use A4 sheets for this document and the enclosures. Use of additional sheets is permitted if space provided is not adequate.
3. Attach copies of latest documents in respect of items 5.0 (Registration no.s)
4. Photographs of registered office and the chief executive/proprietor shall be furnished.



Bharat Heavy Electricals Limited

Corp. R&D DIVISION

VIKAS NAGAR,

HYDERABAD- 500 093 (INDIA)

RD:MPX:F-14

SUPPLIER REGISTRATION FORM

(FOREIGN SUPPLIER)

ALL COLUMNS SHOULD BE PROPERLY FILLED IN THE SPACE PROVIDED FOR. WHEREVER IT IS NOT APPLICABLE PLEASE WRITE NOT APPLICABLE. INCOMPLETE OR INCORRECT FORMS MAY NOT BE CONSIDERED.

1.0 GENERAL INFORMATION:

1.1 NAME OF COMPANY

1.2 DETAILS OF HEAD OFFICE:

ADDRESS :
 TELEPHONE :
 FAX :
 EMAIL :
 WEB SITE :

1.3 DETAILS OF FACTORY/WORKS:

ADDRESS :
 TELEPHONE :
 FAX :
 EMAIL :
 WEB SITE :

1.4 DETAILS OF MARKETING AGENT

ADDRESS :
 TELEPHONE :
 FAX :
 EMAIL :
 WEB SITE :

1.5 CHIEF EXECUTIVE

1.6 CONTACT PERSON(S)

FOR PRODUCT OFFERED

NAME(S) :
 OFFICIAL :
 CPACITY :
 ADDRESS :

TELEPHONE :
 FAX :
 EMAIL :

1.7 YEAR OF ESTABLISHMENT

1.8 PRODUCTION CAPACITY PER ANNUM

1.9 PARTICULARS OF PRODUCT INCLUDING
 SPECIFICATION AND RANGE OFFERED
 FOR REGISTRTION
 (Attach brouchers and catalogues)

1.10 NAME(S) OF BANKERS

1.11 BANKER'S CERTIFICATE

1.12 PORT OF LOADING

1.13 NEAREST AIRPORT

1.14 NAME OF THE INDIAN AGENT, IF ANY
 WITH AUTHORIZATION LETTER

2.0 FINANCIAL INFORMATION:

2.1 TOTAL CAPACITY

2.2 ANNUAL TURN OVER FOR LAST 3 YEARS

2.3 WHEHER CREDIT LICENSE ACCEPTABLE YES/NO

3.0 QUALITY MANAGEMENT SYSTEMS

ENCLOSED FORMAT PART-B

3.1 EXPERIENCE LIST FOR SAME/ SIMILAR ITEMS
 TO BE ENCLOSED

4.0 FUTURE EXPANSION PLANS:

(Give details)

5.0 LIST OF ENCLOSURES:

(Including brouchers, catalogues, technical literature etc)

6.0 ANY OTHER INFORMATION:

SIGNATURE OF SUPPIER (Authorized signatory)

NAME :
 DESIGNATION :

DATE :
OFFICIAL SEAL

Note:

1. BHEL Reserves the right to take penal action as deemed fit if any of the information provided by the vendor is found to be incorrect.
2. Please attach separate sheets, if space found is inadequate



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GUIDE LINES REGARDING DEALINGS WITH INDIAN AGENTS OF FOREIGN SUPPLIERS

- i. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.
- ii. It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.
- iii. The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.
- iv. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
- v. Whenever Indian agents are representing on behalf of their principals the relevant authorisation letter and agreement copy to be enclosed along with Technical bid to consider the offer.

Annexure – 1to Enquiry No: 571209951dated 30.03.2013

Model Predictive Controller software for MIMO systems.

Title of Work: Development of Model Predictive Control software for Super-heater(SH) and Re-heater (RH) steam temperature control in thermal power plants.

Overview & Problem Definition:

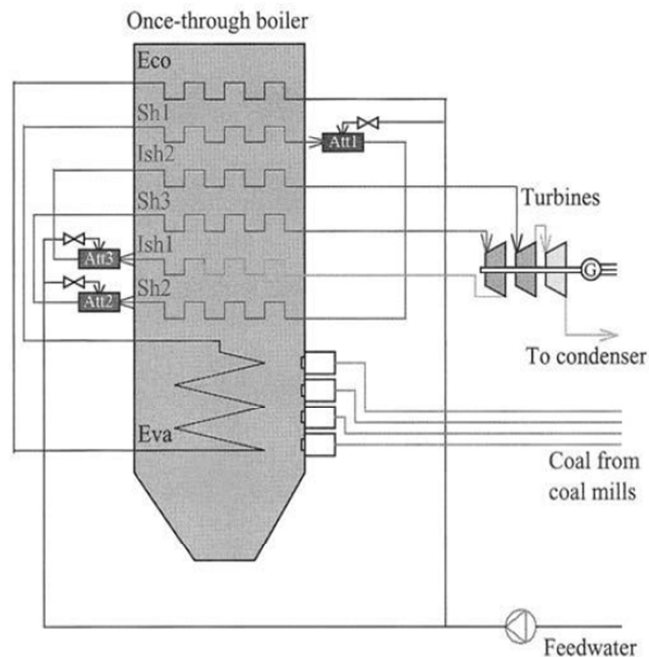


Fig.1: Outline of a typical TPP. Eco: Economiser; Eva: Evaporator; SH: High pressure Super-heater; Ish: Intermediate pressure super-heater; Att: Attemperator.

In a typical thermal power plant (TPP) the boiler process includes number of super heaters (SH) which facilitate energy transfer between the flue gas and the water/steam. The control system has **to ensure that the steam temperature & pressure are maintained within allowable limits with respect to the set points. This will improve the plant availability and the plant life.** The disturbances faced by the SH/RH are load changes, start/stop of coal mills, soot blowing, etc. The control problem is multivariable, has load dependent high order dynamics and is exposed to disturbances from plant load, flue gases & fuel inputs.

Scope of work:- For the above mentioned SH/RH or any other MIMO system, using the input output data necessary software has to be developed in 'C' or 'JAVA' for solving the control problem.

1. S/W to identify the model and **predict the output** of a **Single-Input Single-Output (SISO)** system, **Multi-Input Single-Output (MISO)** system, and a **Multi-Input Multi-Output (MIMO)** system using given Input-Output data. The software should be capable of handling noisy Input-Output data.
- 2.) Software to realise the Model predictive controller (MPC) for the selected SH/RH/MIMO system.
- 3.) Data sets of all Input-Output measurements of SH/RH/MIMO sections sourced from our TPP simulator at different operating points & under different plant conditions will be made available.

- 4.) The software should be developed in 'C' or 'JAVA' supported by Microsoft Visual Studio using the basic functions & libraries provided therein. To facilitate portability of the source code across platforms, usage of any kind of third party libraries, DLLs etc will not be accepted.
- 5.) Flow charts & source code of the software has to be provided. *BHEL will associate with vendor's technical team at various stages to understand & absorb the technology/software.*
- 6.) ***BHEL will take care of the integration of the application software with the TPP Simulator and performing of the online testing after completion of the development work.*** Different sets of Input-Output data shall be collected online from the TPP simulator & used with the application software for both the online identification of SH/RH/MIMO model & for generating the MPC outputs of the respective controllers.

Inputs for development work: Wherever required, all feasible & meaningful Open/Closed Loop STEP tests will be conducted & the respective Input-Output data will be generated using our TPP simulator and provided. For the other plant operating conditions, running plant data, after subjecting the plant to a load disturbance will be generated from the TPP simulator and provided. Any additional data required for the development work can be discussed and considered for generation from the TPP Simulator.

Fig.2, Fig.3 & Fig.4 below represent the SISO, MISO & MIMO systems respectively.

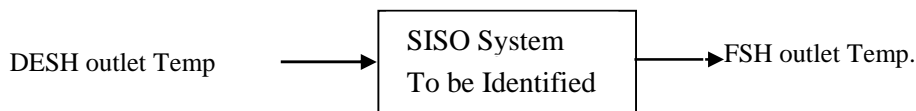


Fig.2: SISO System to be identified.

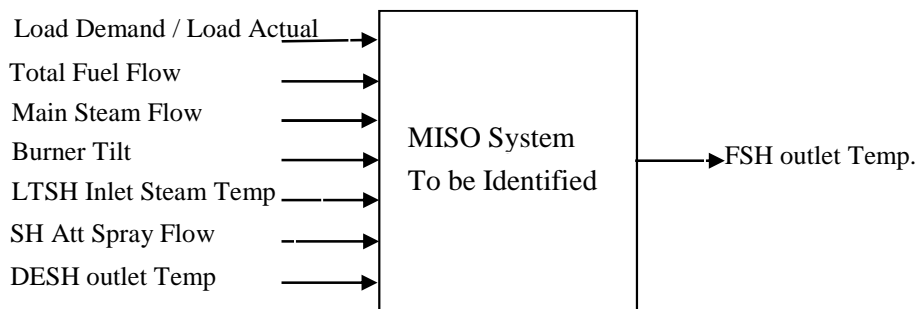


Fig.3: MISO System to be identified.

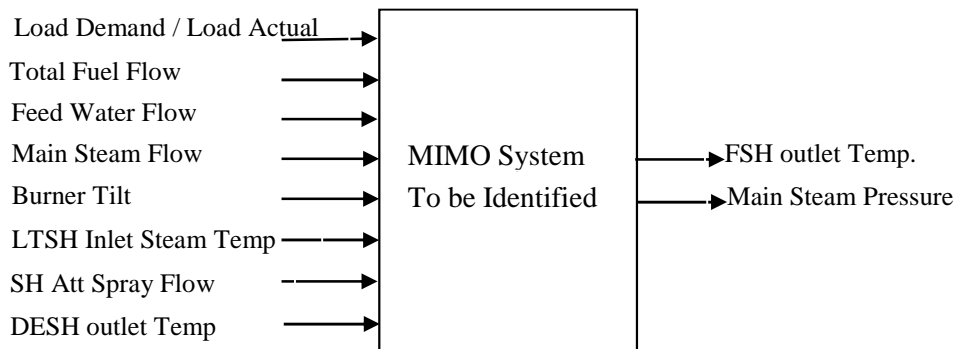


Fig.4: MIMO System to be identified.

Fig.5, Fig.6 & Fig.7 below represent the MPC for SISO, MISO & MIMO systems respectively.

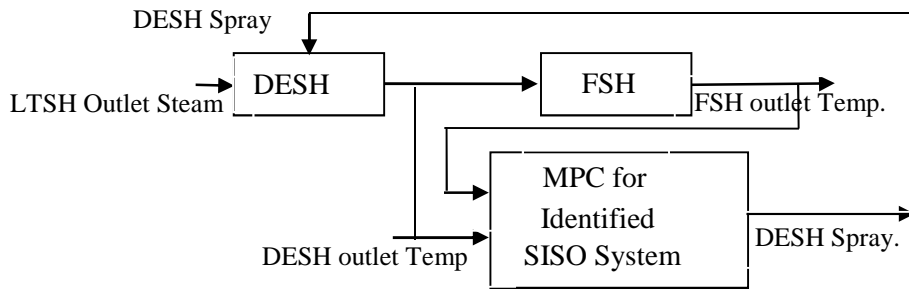


Fig.5: MPC for SISO System.

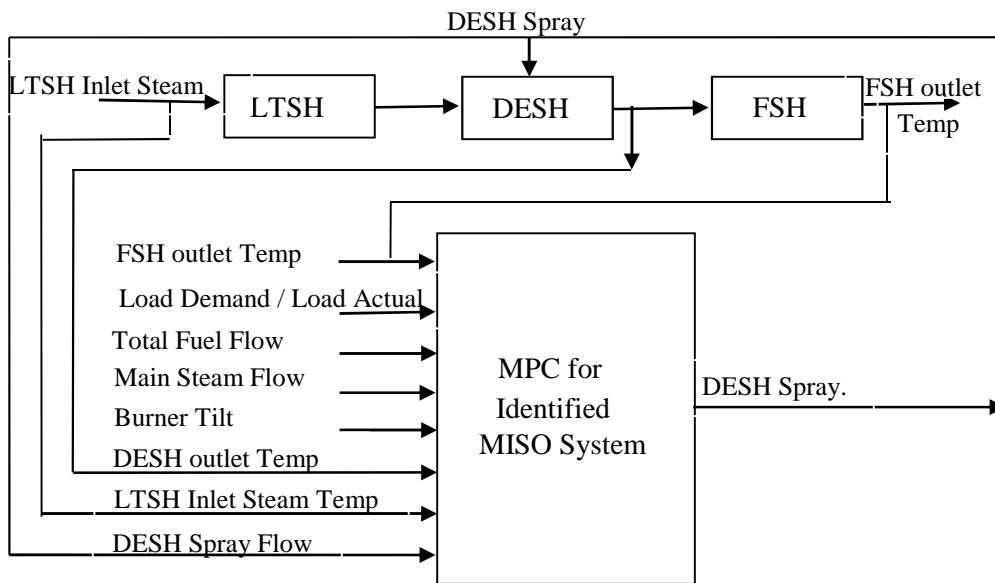


Fig.6: MPC for MISO System.

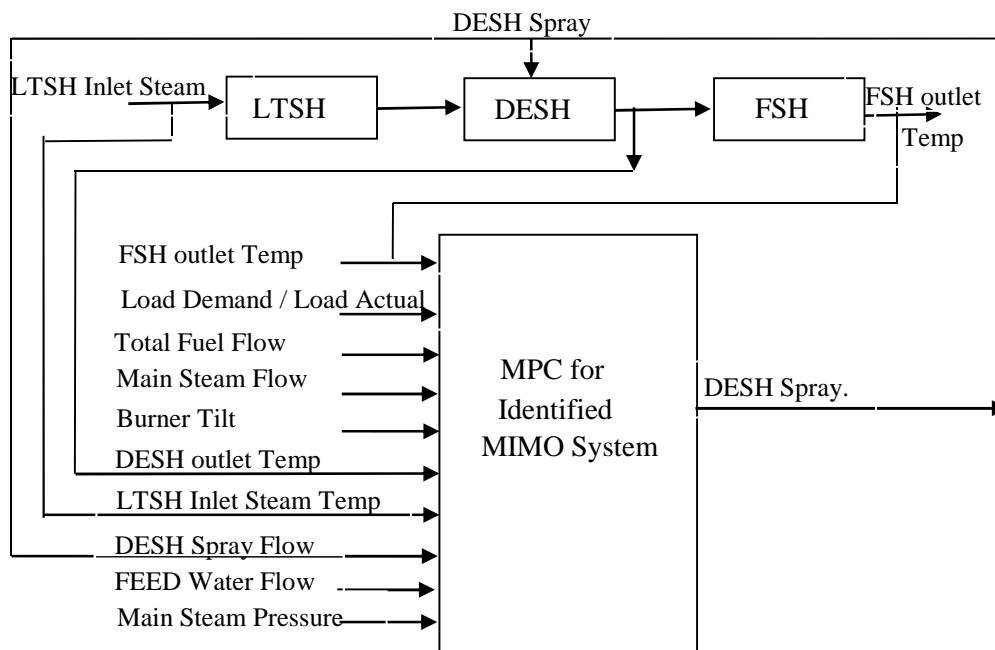


Fig.7: MPC for MIMO System.

Delivery terms: Delivery may be made in two phases as detailed below.

Phase 1: Work as given below to be completed in three months from date of release of firm PO.

Deliverables: Shall consist of the following:

1. S/W to **predict the output** of a **Single-Input Single-Output (SISO)** system using given inputs.
2. S/W to **predict the output** of a **Multi-Input Single-Output (MISO)** system using given inputs.
3. S/W to **predict the outputs** of a **Multi-Input Multi-Output (MIMO)** system using given inputs.
4. Deliverables shall consist of hardcopy & softcopy of detailed Flow charts of Algorithms, source code of above in '**C**' or '**JAVA**' language and tabulated data consisting of the Inputs, Outputs & Computed Outputs.

Phase 2: Work as given below to be completed in six months from date of release of firm PO or three months after the completion of phase 1, whichever is earlier.

Deliverables: Shall consist of hardcopy & softcopy of the following:

1. S/W to **predict the controller outputs** for the above **SISO, MISO & SH/RH/MIMO** systems.
2. S/W covering all above types of systems **incorporating provision to handle noisy inputs**.
3. Tabulated data consisting of the a) Input, b) Output & c) Computed Outputs.
4. Results showing proof of compliance meeting the acceptance criteria.

Acceptance Criteria:

1. For the model identification (SISO, MISO & MIMO) part of the software, the difference between actual output & model computed output should be within 0.2% of the actual output.
2. For the MPC part of the software, the MPC calculated controller output should be able to restrict the overshoots & undershoots in the SH/RH temperature to less than 2 DegC and the settling time of the SH & RH to less than 5 minutes.
3. The MPC software should be able to automatically control the SH/RH temperatures (as described above) without any kind of operator intervention at all operating points & under different plant operating conditions, including when plant is subjected to load & other kinds of disturbances.
4. Necessary fine tuning / corrections to the model (SH/RH/MIMO) identification and the MPC part of the software will have to be done by the vendor to meet the above acceptance criteria.

Qualifying Criteria: During the evaluation phase the vendor will be required to prove his capability by developing (in '**C**' or '**JAVA**' language) & demonstrating the model for a SISO system using the input-output test data provided by BHEL. The acceptance criteria would be that the difference between actual output & model computed output should be within 0.2% of actual output.