



BHARAT HEAVY ELECTRICALS LIMITED
Heavy Power Equipment Plant, Ramachandrapuram, Hyderabad – 502 032 (INDIA)
Project Engineering & Systems Division
Phone: 2318 2167 Fax No: 2302 0138

ENQUIRY

Enq No: HY/PE&SD/L&P/BOP/1234 dtd 13.07.10

Sub: Offloading of Piping Engineering Services for STG-GTG projects using PDMS

Attachments:


- (i) Technical Specification For Engineering Services of Balance Of Plant Mechanical(BOP-Mech) Piping Engineering Using PDMS software Spec. No. GT57563 Rev 03
- (ii) Project Specific Details a) Maruti Suzuki Manesar-GTG : PEMC-02434
 - b) TNPL-STG project : PEMC-02431
 - c) Manikgarh STG project : PEMC-02432
 - d) BCPL-Rich Gas Compressor :PEMC-02430
- iii) Drgs as mentioned in (ii) above


Pl. note the following:


- i) Completion of the engineering deliverables to be within 6 months from the date of L.O.I.
- ii) Technical cum Un-Priced Commercial offer and Price Offer are to be submitted in hard copies, separately in a sealed covers. Offer shall not be submitted through email.
- iii) Technical cum Un-Priced Commercial offer will be opened first and after technical evaluation, price offers of Bidders found technically suitable & conforming to commercial terms only will be opened.
- iv) The sealed covers shall be addressed to the undersigned, mentioning “Offloading of Piping Engineering Services for STG-GTG projects using PDMS , Enquiry no : HY/PE&SD/L&P/BOP/1234” and “Due date for opening on 27.07.10 ” and shall be sent so as to reach before 11.00 Hrs on 27.07.10


Regards,


VVSS .Sundar,
DGM / PE&SD,
01-New Engineering Building,
BHEL- R C Puram,
Hyderabad-502032
Ph:040-23182167
Mob: 9490167455

TD-201 Rev No. 00	Form No.	 HYDERABAD	PRODUCT STANDARD PROJECT ENGINEERING AND SYSTEMS DIVISION		GT 5 7563 Rev No. 03 Page 1 of 7	
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.		<p align="center">Technical Specification For Engineering Services of Balance Of Plant Mechanical(BOP-Mech) Piping Engineering Using PDMS software</p> <p>I.INTRODUCTION The purpose of this specification is to specify requirements of 3D Modeling/deliverables being offloaded to Engineering Sub Contractor (ESC) by Project engineering Division of BHEL.</p> <p>II. SCOPE OF SUPPLY The ESC shall use only PDMS software packages to develop the plant layout module to generate deliverables like Equipment layouts, Piping layouts, isometrics, stress analysis and supports detailing from 3D modeling. For more details, refer to enclosed document PEMC-XXXXX as mentioned in the enquiry.</p> <p>III. REFERENCE DRAWINGS For reference drgs/docs, refer to enclosed document PEMC-XXXXX as mentioned in the enquiry.</p> <p>IV. SCOPE OF WORK OF ESC IN THE PROJECT ESC shall model the power plant in 3D using PDMS software and deliver the following deliverables. The model shall have detailed 3D models of piping, equipment, structurals etc.</p> <p>1. Layout Engineering: A. Plot Plan/ STG Hall Layout/ Area Layouts: Plot Plan and STG Hall Layout drawings are to be further revised taking care of changes in the equipment GA drawings, locations, comments received from BHEL's Customer/ Consultant, during the execution of the project. Area layouts are to be developed for different areas of Plot plan based on input details provided by BHEL. Based on these equipment layouts and P&IDs, ESC shall carry out Balance of Plant piping engineering with close interaction as and when required with BHEL engineers.</p> <p>B. Piping Layouts Complete steam, feed water, utilities piping layouts for the entire scope of BHEL contract with Customer shall be prepared by ESC based on Plot plan and P&IDs. Piping Layout shall cover all lines per P&IDs, the details of equipment supplied by BHEL are to be superimposed on the Piping layout for checking of interference and clashes are to be avoided. ESC to note that piping layout shall show routing for all process lines, irrespective of their size i.e. lines of less than 2" shall also be shown in piping layout. Since the Plot plan, P&IDs, piping etc. may undergo several revisions during the progress of the Engineering work, necessary changes as applicable in the piping layout etc. shall also be taken care by ESC without any commercial or any other implications. 3D model will be reviewed by BHEL's Customer & Consultant to Customer during the execution of the project. Same may be done at ESC office/BHEL office.</p> <p>2. Material Take Off ESC shall prepare system wise "Material Take Off" list (MTO) for piping system in two phases. In the first phase, ESC shall furnish the MTO within two weeks of placement of order based on initial PLOT PLAN and P & IDs. In the second phase, ESC shall furnish additional MTO / Revised MTO within two weeks after finalization of piping layouts. This MTO shall include pipes, pipe fittings, valves, flanges, fasteners (stud nuts), gaskets etc.</p>				
		Ref. Doc	Revisions : Refer to record of revisions :	Prepared : K. Srinivas	Approved : B.I.Babu	Date : 18.09.07


Form No.	 HYDERABAD	PRODUCT STANDARD PROJECT ENGINEERING AND SYSTEMS DIVISION	GT 5 7563
			Rev No. 03
			Page 2 of 7
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company.	<p>After finalization of isometrics, ESC shall once again reconcile the MTO with the MTO prepared at first and second phases to identify any shortages or surplus and furnish to BHEL.</p> <p>3. Isometrics Isometrics are to be prepared for all pipes of diameter 2" & above. Bill of material in the Drgs. & also in specified format of BHEL (showing "DESS No" of all Items, Tag-No. of valves and instrumentations, etc.) shall be prepared by ESC. Isometrics should also indicate the design data and erection notes (e.g. references to standard edge preparations, Hydraulic testing, Radiography requirement etc) & alongwith the terminal point hook-up details.</p> <p>4. Stress Analysis should be carried out wherever it is required for various piping systems to ensure safe working of various interconnected systems & equipment on CAEPIPE/CAESAR.</p> <p>5. IBR Documentation ESC shall also prepare & submit complete IBR documentation in line with the IBR & project requirements. This document should contain, but not limited to, stress analysis input, output, isometric, support design and drawings & Bill of Materials.</p> <p>6. Hangers and Support Documents ESC shall prepare the "Hanger & support schedule", detailed Support arrangement sketches and the BOM for hangers & support systems of piping including consolidated raw materials.</p> <p>V. DOCUMENTATION:</p> <ul style="list-style-type: none"> • Initial submission as check print for BHEL (Rev-A,B etc) : Through email • Submission to BHEL final revision 00 : Through email (Rev.0 & Subsequent revisions till finalization) • A4 size Color prints of 3D model views covering total plant : 1 set • Final drawings and documents in spiral bound form A3 size : 1 set hard copy • Soft copy of final documentation on CD's. : Two CDs • Soft copy of final 3D model : to be loaded on BHEL server <p>Notes:</p> <ol style="list-style-type: none"> 1. Engineering charges shall include charges for the above documents 2. During detail engineering stage, BHEL may like to exchange technical documents and drawings through electronic media (Internet), E-mail. ESC should ensure that he has compatible workstation at his engineering office for this purpose. 3. ESC may have to furnish the files of the drawings of the project by E-Mail or in the form of a floppy/CD, as and when requested by BHEL during the engineering work. 		
	Ref. Doc		


Form No.		<div><div>बी एच ई एल</div><div></div><div>HYDERABAD</div></div>	PRODUCT STANDARD		GT 5 7563	
					Rev No. 03	
					Page 3 of 7	
The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company.		VI. COMMERCIAL TERMS:				
COPYRIGHT AND CONFIDENTIAL		a) Earnest Money Deposit:				
		Bidder to pay 'Earnest Money Deposit' (EMD) of Rs. XXX (For amount of Rupees refer to enclosed document PEMC-XXXXX as mentioned in the enquiry) in the form of Pay Order or Demand Draft along with their technical offer. EMD given by all unsuccessful bidders shall be refunded normally within fifteen days of acceptance of award of work by the successful tenderer. EMD shall not carry any interest. EMD of successful bidder shall be converted and adjusted against security deposit. Technical offers received without EMD are liable for rejection. Demand draft shall be drawn in favour of BHEL- Ramachandrapuram, Hyderabad				
		b) Security Deposit:				
		Security Deposit will be collected from the successful bidder. The rate of Security Deposit will be as below: - Up to Rs. 10 lakhs: 10% - Above Rs. 10 lakhs up to Rs.50 lakhs: Rs.1 lakh + 7.5% of the amount exceeding Rs. 10 lakhs. - Above Rs. 50 lakhs: Rs 4 lakhs + 5% of the amount exceeding Rs. 50 lakhs.				
		The security Deposit should be collected before start of the work by the contractor. Security Deposit may be furnished in any one of the following forms: i) Cash (as permissible under the Income Tax Act) ii) Pay Order, Demand Draft in favour of BHEL iii) Local cheques of scheduled banks, subject to realization. iv) Securities available from Post Offices such as National Savings Certificates, Kisan Vikas Patras etc. (Certificates should be held in the name of Contractor furnishing the security and duly pledged in favour of BHEL and discharged on the back). v) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL. vi) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/C BHEL, duly discharged on the back. vii) Security deposit can also be recovered at the rate of 10% from the running bills. However in such cases at least 50% of the Security Deposit should be collected before start of the work and the balance 50% may be recovered from the running bills. ix) The security deposit shall not carry any interest. (Note: Acceptance of Security Deposit against Sl. No. (iv) and (vi) above will be subject to hypothecation or endorsement on the documents in favour of BHEL. However, BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith).				
				Security Deposit will be released on commissioning of the total plant in cogeneration mode, submission of 'As Built' drawings and submission of detailed structure wise BOQs.		
c) Payments:						
		Payments will be made to ESC against ESC's invoices. All payments will be made within 90 days after submission of original documents to BHEL for processing. Payment for engineering will be controlled based on milestone payments as per clause VI (d).				
		95 % of order value will be paid during execution of job based on milestone payments mentioned below. 5% balance amount of order value will be paid 9 months after submission of 'FINAL' documentation or after completion of site erection whichever is earlier.				
Ref. Doc		d) The project Engineering completion shall be 6 months from the date of LOI.				
		e) Milestone Payments:				
		Refer to enclosed document PEMC-XXXXX as mentioned in the enquiry for respective project				


Form No.	 HYDERABAD	PRODUCT STANDARD PROJECT ENGINEERING AND SYSTEMS DIVISION	GT 5 7563
			Rev No. 03
			Page 4 of 7
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company.	<p>VII VALIDITY OF THE OFFER:</p> <p>i. The offer by the ESC shall be kept valid for 6 months from bidding date.</p> <p>ii. If the job is awarded, the successful ESCs price shall be kept firm till 24 months from the date of LOI or till completion of project, whichever is later.</p> <p>VIII Following are the basis for Offer scrutinizing during order finalization stage .ESC to ensure submission of all these alongwith offer.</p> <ol style="list-style-type: none"> ESC to clarify clearly any deviation if taken from the scope specified in the spec. Deviation list to be provided incase applicable. Commercial terms confirmation. ESC should have PDMS valid license for 3D Modeling ESC should be a regular registered firm with valid service Tax ref nos etc as per rules. ESC shall have authorised CAEPIPE or CAESER flexibility analysis software. At the time of quoting, ESCs shall have completed 5 Power plant Piping projects (4 STG & 1 GTG) . Reference list shall be enclosed along with offer. ESC shall submit the following of last 3 years a) Audited balance sheets b) Audited P&L Accounts Income tax returns ESC to submit the following documents alongwith offer a) Certificate of incorporation b) Memorandum & Articles Copy c) Excise duty registration d) PF Remittance e) Sales Tax registration f) Man Power and machinery g) PAN No/TAN No/Excise Duty registration/Sales tax/Service tax h) List of customers i) ESC to submit the DD for earnest money deposit along with technical offer the amount as specified in respective PEMC-XXXXX ESCs shall have engineering facility in Hyderabad as day to day interaction with BHEL engineers is required during execution. In the uncommercial priced offer/ price bid , ESC to fill/quote the details as given in price format only (i.e Lumpsum price only is to be quoted for each project as per PEMC-XXXXX). BHEL will not entertain any other expenses/assumptions written separately in the price format than those specified. <p>The applicable drawings basically equipment layout and P & I are enclosed with a two separate folder along with this spec folder.</p> <p>ESC to submit hard copy of their technical & commercial offer and price bid offer addressing to BHEL Ramachandrapuram, separately in a sealed covers (Two part bid). Order will be finalized separately on ESCs for each customer project mentioned above on L1 basis. Prices are to be quoted separately for each customer project in the price bid. Price format to be followed is enclosed.</p> <p>Technical offer will be opened first and after finding the offer technically suitable the price bids will be opened. ESCs will be informed about the date of Technical opening and the price bid opening for their participation. Any ESC who is not qualified technically , the earnest money will be returned back as it is without any interest. The earnest money of successful ESC will be converted in to the security deposit and will remain with BHEL and will be returned to the ESC after completion of the job without any interest.</p>		
	Ref. Doc		


Form No.	<div><div>बी एच ई एल</div><div></div><div>HYDERABAD</div></div>	<div>PRODUCT STANDARD</div> <div>PROJECT ENGINEERING AND SYSTEMS</div> <div>DIVISION</div>	GT 5 7563
			Rev No. 03
			Page 5 of 7

<div>COPYRIGHT AND CONFIDENTIAL</div> <div>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company.</div>	<div>XI. GENERAL INSTRUCTIONS</div> <div><div>1. All specifications drawings and documents and bill of material (BOM) shall be prepared in the formats as directed by BHEL.</div><div>2. Since speedy delivery of documents is essential for a tight project schedule, it shall be responsibility of ESC to ensure timely delivery of all documents.</div><div>3. BHEL shall have the right to remove from work (in the engineering work) or at project site any of the employees of ESC who in the opinion of BHEL is not suitable to perform work assigned to him or on account of improper conduct or negligence in duty.</div><div>4. ESC shall include revision/modification cost of drawings/documents that can be anticipated for completion of the project of such a nature based on his experience.</div><div>5. ESC shall familiarize fully with the standard/ procedures/ practice/ quality requirements of BHEL / Customer and also the site conditions, to avoid any dispute at later date and after order placement.</div><div>6. BHEL shall not pay any amount, other than the fee specifically agreed, towards any cost incurred by ESC by way of salaries to his employees (income and taxes) insurance of any nature, benefits/bonus to the employees, etc. BHEL's liability is limited to the amount contracted for the services to be rendered under the scope of work defined.</div><div>7. ESC shall not commit any expenditure on behalf of BHEL without BHEL's consent in writing, during the execution of the work defined in the scope.</div><div>8. ESC shall bear all expenses/fee penalties if it infringes on patents/licenses of any persons/organizations or in case of suits, court proceedings, damage claims etc., due to any reason whatsoever.</div><div>9. ESC shall ensure that it possesses the latest revisions of various national and international standards, codes of practices, statutory & environmental regulations etc. - as applicable, for execution of the engineering work. BHEL shall not provide any such documents to ESC. Engineers of ESC assigned for this project shall have familiarity on relevant documents as mentioned above for their use and applications.</div><div>10. ESC shall maintain at their own cost the personal accidents policy, life insurance and / or any such insurance required in respect of their personnel deputed to outstation visits for the given contract.</div><div>11. BHEL reserves the right to terminate or suspend the contract or withdraw part of the scope of the work at any stage of its execution, if it found that ESC has not met its obligation for the performance / progress is not up to the expected standards and overall work is likely to suffer. In such an event, BHEL shall give one-month notice in writing. In such case all costs incurred accordingly by BHEL to complete any work forming part of the contract shall be recovered from ESC. In case of such premature termination of contract, BHEL reserves the right to claim damages from ESC including the initiation of judicial proceedings.</div><div>12. ESC shall keep all information/data/drawings etc. related to the work as confidential information and shall not divulge or use the information indirectly or directly in any way detrimental to the interest of BHEL. All drawings, documents, manuals, design calculations including all originals prepared or obtained during the work shall remain the property of BHEL and shall be handed over to BHEL on demand.</div><div>13.ESC shall comply with the laws and regulations of the country, the state and territories concerned, during the progress of the work.</div></div>
	<div>Ref. Doc</div>


	Form No.	 HYDERABAD	PRODUCT STANDARD PROJECT ENGINEERING AND SYSTEMS DIVISION	GT 5 7563
				Rev No. 03
				Page 6 of 7
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company.	<ol style="list-style-type: none"> 14. In the event of any query, dispute, or differences arising out in connection with the contract, whether during the progress of work or after its completion, BHEL and ESC shall nominate one arbitrator each. The arbitration shall be conducted in accordance with the latest provisions of the Indian arbitration act 1940. 15. ESC shall submit progress report on the status of the work entrusted to him periodically and as mutually agreed upon. 16. ESC shall be fully responsible for the accuracy and adequacy of engineering services rendered by him. Any modifications / rectification, if required in engineering and design shall be carried out expeditiously by ESC at their own cost. Losses / damages if any due to wrong engineering shall be compensated by ESC and a maximum of 10% of the lump sum engineering fee shall be deducted from the bills of ESC arising out of such errors. 17. ESC shall ensure optimal & economic design while executing the engg. Work, but without sacrificing the customer specification requirements /Statutory regulations/code provisions/safety aspects. 			
	Ref. Doc			


TD-106-3 Rev No. 5 Form No.		<div><div><div>बी एच ई एल</div><div></div><div>HYDERABAD</div></div></div>		<div>PRODUCT STANDARD</div> <div>PROJECT ENGINEERING AND SYSTEMS DIVISION</div>		<div>GT 5 7563</div> <div>Rev No. 03</div> <div>Page 7 of 7</div>	
<div>COPYRIGHT AND CONFIDENTIAL</div> <div>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.</div>		RECORD OF REVISIONS					
		Rev. No.	Date	Revision Details	Revised By	Approved By	
		00	18.09.07	FIRST ISSUE	K.S.	B.I.B.	
		01	21.02.09	GENERALLY REVISED	V.V.S.S.	B.I.B.	
		02	15.09.09	GENERALLY REVISED	K.S.	B.I.B.	
		03	12.07.10	GENERALLY REVISED	V.V.S.S.	B.I.B.	
		Ref. Doc.					


Form No.		Engineering Services of Piping Engineering using PDMS 3D Modeling	PEMC-02434																
		Project : MSIL-MANESAR-II 1 X Fr 5,GTG BASED COGEN CYCLE PLANT	Rev No. 00																
			Page 2 of 4																
Ref. Doc	<p>B) Civil: Civil works are in customer scope</p> <p>III. REFERENCE DRAWINGS for ESCs:</p> <table border="0"> <tr> <td>1) PLOT PLAN:</td> <td>0-381-01-01149</td> </tr> <tr> <td>2) P&ID for OFF BASE GAS System for GT & HRSG:</td> <td>1-381-01-03897</td> </tr> <tr> <td>3) P&ID for OFF BASE HSD System for GT :</td> <td>1-381-01-03900</td> </tr> <tr> <td>4) PID for steam system:</td> <td>1-381-01-04008</td> </tr> <tr> <td>5) P&ID for make up water :</td> <td>1-381-01-03901</td> </tr> <tr> <td>6) PID Feed water system:</td> <td>1-381-01-03902</td> </tr> <tr> <td>7) P&ID for LP Dosing skid</td> <td>Later</td> </tr> <tr> <td>8) P&ID for UTILITY</td> <td>2-38101-01929</td> </tr> </table> <p>IV. SCOPE OF WORK OF BIDDER IN THE PROJECT</p> <p>All items as mentioned in enclosed Specification GT57563.</p> <p>V. MILESTONES FOR PAYMENTS</p> <ol style="list-style-type: none"> Composite piping layout 10% Revised Eqpt and piping layouts based on comments 10% 3D modeling including logical supports 15% Equipment layouts extracted from 3D model 5% Completion of Stress analysis 7.5% Final piping layouts-from 3D model 10% Final material takeoff-after design audit 5% Isometrics with BOM and linking des nos for all materials 20 % Hanger & Support schedule and Arrangement sketches 7.5% Final Documentation 5% <p>VI. EMD: Rs 20,000/-(Rupees Twenty Thousand Only) to be attached alongwith technical bid.</p>			1) PLOT PLAN:	0-381-01-01149	2) P&ID for OFF BASE GAS System for GT & HRSG:	1-381-01-03897	3) P&ID for OFF BASE HSD System for GT :	1-381-01-03900	4) PID for steam system:	1-381-01-04008	5) P&ID for make up water :	1-381-01-03901	6) PID Feed water system:	1-381-01-03902	7) P&ID for LP Dosing skid	Later	8) P&ID for UTILITY	2-38101-01929
	1) PLOT PLAN:	0-381-01-01149																	
2) P&ID for OFF BASE GAS System for GT & HRSG:	1-381-01-03897																		
3) P&ID for OFF BASE HSD System for GT :	1-381-01-03900																		
4) PID for steam system:	1-381-01-04008																		
5) P&ID for make up water :	1-381-01-03901																		
6) PID Feed water system:	1-381-01-03902																		
7) P&ID for LP Dosing skid	Later																		
8) P&ID for UTILITY	2-38101-01929																		

Form No.		Engineering Services of Piping Engineering using PDMS 3D Modeling Project : MSIL-MANESAR-II 1 X Fr 5,GTG BASED COGEN CYCLE PLANT	PEMC-02434																			
			Rev No. 00																			
			Page 3 of 4																			
Ref. Doc	PRICE FORMAT																					
	Enquiry No: HY/PE&SD/L&P/BOP/1234 dtd 13.7.10 Job: Offloading of Piping Engineering Services for STG-GTG projects using PDMS Project : MSIL-Manesar-II Name of the ESC:																					
	<table border="1"> <thead> <tr> <th>S.No</th> <th>Item</th> <th>Basic Price Rs</th> <th>Service Tax Rs</th> <th>Other Tax Rs</th> <th>Total Rs</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>Lumpsum Price for Engineering Services of Piping Engineering using PDMS Software</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				S.No	Item	Basic Price Rs	Service Tax Rs	Other Tax Rs	Total Rs	01	Lumpsum Price for Engineering Services of Piping Engineering using PDMS Software										
	S.No	Item	Basic Price Rs	Service Tax Rs	Other Tax Rs	Total Rs																
	01	Lumpsum Price for Engineering Services of Piping Engineering using PDMS Software																				
	<table border="1"> <thead> <tr> <th>S.No</th> <th>Item</th> <th>Draughtsman</th> <th>Design Assistant</th> <th>Engineer</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>No. Of Man Hours Considered</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>02</td> <td>Rate in Rs per ManHour</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				S.No	Item	Draughtsman	Design Assistant	Engineer	Total	01	No. Of Man Hours Considered					02	Rate in Rs per ManHour				
	S.No	Item	Draughtsman	Design Assistant	Engineer	Total																
	01	No. Of Man Hours Considered																				
	02	Rate in Rs per ManHour																				
	Notes: 1. No other charges other than specified above will be payable to ESC. 2. Offers which are incomplete or where separate prices are not indicated are liable for rejection. 3. Percentage of taxes & duties considered may also be indicated. 4. Bidder to fill up the above prices manually, put his seal & signature, and submit the same in a separate sealed envelope along with technical offer. 5. Bidder to fill as ' Quoted ' in all above fields and submit the same alongwith technical offer. 6. The price format should be strictly as per above. No other prices/assumptions written separately in the above format are acceptable.																					
(Authorized Signatory)																						
Seal of the Company																						

TD-106-3	Rev No. 5	Form No.		PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD-32		PEMC-02434		
<div>COPYRIGHT AND CONFIDENTIAL</div> <div>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.</div>				RECORD OF REVISIONS			Rev No. 00	
				Page 4 of 4				
				Rev. No.	Date	Revision Details	Revised By	Approved By
				00	12.07.10	First Issue	SKB	VVSS
				R	ef			

		<div><div><div>बी एच ई एल</div><div></div><div>HYDERABAD</div></div></div>	Engineering Services of Piping Engineering using PDMS 3D Modeling Project : TNPL,Kagithapuram 1 x 41 MW STG		PEMC 02431	
					Rev No. 00	
					Page 1 of 4	
I		<p>I. Scope: The purpose of this document is to provide project specific information to be used as input by Engineering Sub Contractor (ESCs) for quoting the Tender. This is to be read in conjunction with ordering specification GT57563.</p> <p>II. Introduction: BHEL is executing a 41 MW STG Power Plant Project at TNPL,Kagithapuram by supplying Turbine and Generator unit with all required auxiliaries. M/s SPBPC, Chennai is Engineering Consultant for TNPL customer.</p> <p>SCOPE OF SUPPLY OF BHEL IN THE PROJECT Following is the detailed scope of supply of BHEL for information of ESCs</p> <p>Steam Turbine Package: 1 no. Steam turbine unit along with condenser, CEP's , ejectors, GSC, Lube Oil equipment and other auxiliaries</p> <p>Generator Package: 1 no. of generator with closed circuit air cooling, brushless exciters, busducts, NGT, AVR, etc.</p> <p>Balance Of Plant: A) Mechanical: i) 2x100% (1W+1S) Vertical canister type Condensate Extraction pumps + A C Motors (ii) Piping : Condensate piping from hot well to Level control valve and terminated at inlet nozzle of condensate storage tank. Air evacuation piping from condenser to ejector Ejector and GSC vent piping and drain piping Main steam piping from Terminal point outside STG Hall to turbine emergency stop valve MP Extraction steam piping from steam turbine extraction to inlet of MP process steam header located outside STG Hall incl Safety valve inlet , exhaust piping LP Extraction steam piping from steam turbine extraction to inlet of LP process steam header located outside STG Hall incl Safety valve inlet , exhaust piping. Balance piston piping to surge header Balance piston piping to MP extraction. Auxiliary steam piping from main steam header to Aux. PRDS ,to SJAE, GSC and Gland seals. Spray water piping from existing BFP discharge to all PRDS station. All steam line Drains to atmospheric flash pipe incl flash pipe. Aux CW supply from TP outside STG Hall to Oil coolers and generator air coolers Aux CW return from Oil coolers and generator air coolers to TP outside STG Hall Instrument air air piping with associated valves and fittings. All other lines as per project P&IDs are in Piping scope of supply.</p> <p>B) Civil: Civil works are in customer scope</p>				
Ref. Doc		Revisions :		Prepared :	Approved :	Date :
		Refer to record of revisions :		Ch Manoj	VVSS	10.07.10

Form No.		Engineering Services of Piping Engineering using PDMS 3D Modeling Project : TNPL Kagithapuram 1 x 41 MW STG	PEMC 02431										
			Rev No. 00										
			Page 2 of 4										
Ref. Doc	<p>III. REFERENCE DRAWINGS for ESCs:</p> <table border="0"> <tr> <td>1) Input for STG Hall equipment layout</td> <td>1-381-01-03924</td> </tr> <tr> <td>2) P&ID for steam system</td> <td>1-381-01-03893</td> </tr> <tr> <td>3) P&ID for condensate system</td> <td>1-381-01-03894</td> </tr> <tr> <td>4) P&ID for Aux cooling water system</td> <td>3-381-01-02945</td> </tr> <tr> <td>5) P&ID for Instrument air distribution scheme</td> <td>3-381-01-02946</td> </tr> </table> <p>IV. SCOPE OF WORK OF BIDDER IN THE PROJECT</p> <p>All items as mentioned in enclosed Specification GT57563.</p> <p>V. MILESTONES FOR PAYMENTS</p> <ol style="list-style-type: none"> 1. Composite piping layout 10% 2. Revised Eqpt and piping layouts based on comments 10% 3. 3D modeling including logical supports 15% 4. Equipment layouts extracted from 3D model 5% 5. Completion of Stress analysis 7.5% 6. Final piping layouts-from 3D model 10% 7. Final material takeoff-after design audit 5% 8. Isometrics with BOM and linking des nos for all materials 20 % 9. Hanger & Support schedule and Arrangement sketches 7.5% 10. Final Documentation 5% <p>VI. EMD: Rs 20,000/-(Rupees Twenty Thousand Only) to be attached alongwith technical bid.</p>			1) Input for STG Hall equipment layout	1-381-01-03924	2) P&ID for steam system	1-381-01-03893	3) P&ID for condensate system	1-381-01-03894	4) P&ID for Aux cooling water system	3-381-01-02945	5) P&ID for Instrument air distribution scheme	3-381-01-02946
	1) Input for STG Hall equipment layout	1-381-01-03924											
2) P&ID for steam system	1-381-01-03893												
3) P&ID for condensate system	1-381-01-03894												
4) P&ID for Aux cooling water system	3-381-01-02945												
5) P&ID for Instrument air distribution scheme	3-381-01-02946												

Form No.		Engineering Services of Piping Engineering using PDMS 3D Modeling Project : TNPL Kagithapuram 1 x 41 MW STG	PEMC 02431		
			Rev No. 00		
			Page 3 of 4		

PRICE FORMAT

Enquiry No: HY/PE&SD/L&P/BOP/1234 dtd 13.7.10
Job: Offloading of Piping Engineering Services for STG-GTG projects using PDMS

Project : **TNPL**

Name of the ESC:

S.No	Item	Basic Price Rs	Service Tax Rs	Other Tax Rs	Total Rs
01	Lumpsum Price for Engineering Services of Piping Engineering using PDMS Software				

S.No	Item	Draughtsman	Design Assistant	Engineer	Total
01	No. Of Man Hours Considered				
02	Rate in Rs per ManHour				

Notes:


- No other charges other than specified above will be payable to ESC.
- Offers which are incomplete or where separate prices are not indicated are liable for rejection.
- Percentage of taxes & duties considered may also be indicated.
- Bidder to fill up the above prices manually, put his seal & signature, and submit the same in a separate sealed envelope along with technical offer.
- Bidder to fill as '**Quoted**' in all above fields and submit the same alongwith technical offer.
- The price format should be strictly as per above.No other prices/assumptions written separately in the above format are acceptable.


(Authorized Signatory)


Seal of the Company


Ref. Doc	
----------	--


TD-106-3	Rev No. 5	Form No.		PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD-32		PEMC-02431		
<div>COPYRIGHT AND CONFIDENTIAL</div> <div>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.</div>				RECORD OF REVISIONS				
				Rev. No.	Date	Revision Details	Revised By	Approved By
				00	10.07.10	First Issue	Ch.Manoj	VVSS
				R	ef			


		<div><div><div>बी एच ई एल</div><div></div><div>HYDERABAD</div></div></div>	Engineering Services of Piping Engineering using PDMS 3D Modeling		PEMC 02432
			Project : Manikgarh Cements 1 x 40 MW STG		Rev No. 00
					Page 1 of 4
I	<p>I. Scope: The purpose of this document is to provide project specific information to be used as input by Engineering Sub Contractor (ESCs) for quoting the Tender. This is to be read in conjunction with ordering specification GT57563.</p> <p>II. Introduction: BHEL is executing a 40 MW STG Power Plant Project at Manikgarh Cements ,Chandrapur by supplying Turbine and Generator unit with all required auxiliaries. M/s SPBPC, Chennai is Engineering Consultant for TNPL customer.</p> <p>SCOPE OF SUPPLY OF BHEL IN THE PROJECT Following is the detailed scope of supply of BHEL for information of ESCs</p> <p>Steam Turbine Package: 1 no. Steam turbine unit GSC, HP Heaters-2 nos,Deaerator,LP Heater,HP Flash tank,Lube Oil equipment and other auxiliaries. Air cooled condenser is supplied by Customer</p> <p>Generator Package: 1 no. of generator with closed circuit air cooling, brushless exciters, busducts, NGT, AVR, etc.</p> <p>Balance Of Plant: A) Mechanical:</p> <p>Piping : Extraction steam piping to HP Heater 2 Extraction steam piping to HP Heater 1 Extraction steam to deaerator Extraction steam piping to LP Heater GSC exhaust piping and drain piping Balance piston piping to LP extraction Safety valve exhaust piping for HP Heater 1 , 2 and LP Heater All steam line Drains to Common header on hotwell pot of acc situated outside TG Hall. GSC exhaust piping to be routed and left outside TG Hall</p> <p>HPH-2 normal drain to deaerator HPH-2 alternate drain to flash tank situated on a platform where condensate storage tank Is situated(~ 50 m away from TG Hall and by the side of ACC). HPH-2 drain to HPH-1 HPH-1 normal drain to deaerator HPH-1 alternate drain to flash tank situated on a platform where condensate storage tank Is situated(~ 50 m away from TG Hall and by the side of ACC). LPH drain to hotwell drain pot located below exhaust duct of ACC,outside TG Hall Flash tank drain to Condensate storage tank nozzle.</p> <p>Flash tank vent to exhaust duct of ACC at TP HPH-1 and HPH-2 vent piping to deaerator LPH vent piping to deaerator</p> <p>Deaerator overflow and drain piping upto TP</p> <p>Aux CW supply from TP outside STG Hall to Oil coolers and generator air coolers Aux CW return from coolers to TP outside STG Hall Instrument air air piping with associated valves and fittings.</p> <p>All other lines as per project P&IDs are in Piping scope of supply.</p>				
	Ref. Doc	Revisions : Refer to record of revisions :	Prepared : K.Gunjan	Approved : VVSS	Date : 10.07.10

Form No.		Engineering Services of Piping Engineering using PDMS 3D Modeling Project : Manikgarh Cements 1 x 40 MW STG	PEMC 02432												
			Rev No. 00												
			Page 2 of 4												
Ref. Doc	<p>B) Civil: Civil works are in customer scope</p> <p>III. REFERENCE DRAWINGS for ESCs:</p> <table border="0"> <tr> <td>1) Overall plot plan showing STG Hall</td> <td>Refer Customer drg</td> </tr> <tr> <td>2) P&ID for steam system</td> <td>1-381-01-03991</td> </tr> <tr> <td>3) P&ID for Heaters drains and vent system</td> <td>1-381-01-03992</td> </tr> <tr> <td>4) P&ID for Feed water system</td> <td>1-381-01-03996</td> </tr> <tr> <td>5) P&ID for Aux Cooling water system</td> <td>3-381-01-02938</td> </tr> <tr> <td>6) P&ID for Instrument air distribution scheme</td> <td>Later</td> </tr> </table> <p>IV. SCOPE OF WORK OF BIDDER IN THE PROJECT</p> <p>All items as mentioned in enclosed Specification GT57563.</p> <p>V. MILESTONES FOR PAYMENTS</p> <ol style="list-style-type: none"> Composite piping layout 10% Revised Eqpt and piping layouts based on comments 10% 3D modeling including logical supports 15% Equipment layouts extracted from 3D model 5% Completion of Stress analysis 7.5% Final piping layouts-from 3D model 10% Final material takeoff-after design audit 5% Isometrics with BOM and linking des nos for all materials 20 % Hanger & Support schedule and Arrangement sketches 7.5% Final Documentation 5% <p>VI. EMD: Rs 20,000/-(Rupees Twenty Thousand Only) to be attached alongwith technical bid.</p>			1) Overall plot plan showing STG Hall	Refer Customer drg	2) P&ID for steam system	1-381-01-03991	3) P&ID for Heaters drains and vent system	1-381-01-03992	4) P&ID for Feed water system	1-381-01-03996	5) P&ID for Aux Cooling water system	3-381-01-02938	6) P&ID for Instrument air distribution scheme	Later
	1) Overall plot plan showing STG Hall	Refer Customer drg													
2) P&ID for steam system	1-381-01-03991														
3) P&ID for Heaters drains and vent system	1-381-01-03992														
4) P&ID for Feed water system	1-381-01-03996														
5) P&ID for Aux Cooling water system	3-381-01-02938														
6) P&ID for Instrument air distribution scheme	Later														

Form No.		Engineering Services of Piping Engineering using PDMS 3D Modeling Project : Manikgarh Cements 1 x 40 MW STG	PEMC 02432																				
			Rev No. 00																				
			Page 3 of 4																				
Ref. Doc	PRICE FORMAT																						
	Enquiry No: HY/PE&SD/L&P/BOP/1234 dtd 13.7.10 Job: Offloading of Piping Engineering Services for STG-GTG projects using PDMS Project : Manikgarh Cements Name of the ESC:																						
	<table border="1"> <thead> <tr> <th>S.No</th> <th>Item</th> <th>Basic Price Rs</th> <th>Service Tax Rs</th> <th>Other Tax Rs</th> <th>Total Rs</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>Lumpsum Price for Engineering Services of Piping Engineering using PDMS Software</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					S.No	Item	Basic Price Rs	Service Tax Rs	Other Tax Rs	Total Rs	01	Lumpsum Price for Engineering Services of Piping Engineering using PDMS Software										
	S.No	Item	Basic Price Rs	Service Tax Rs	Other Tax Rs	Total Rs																	
	01	Lumpsum Price for Engineering Services of Piping Engineering using PDMS Software																					
	<table border="1"> <thead> <tr> <th>S.No</th> <th>Item</th> <th>Draughtsman</th> <th>Design Assistant</th> <th>Engineer</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>No. Of Man Hours Considered</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>02</td> <td>Rate in Rs per ManHour</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					S.No	Item	Draughtsman	Design Assistant	Engineer	Total	01	No. Of Man Hours Considered					02	Rate in Rs per ManHour				
	S.No	Item	Draughtsman	Design Assistant	Engineer	Total																	
	01	No. Of Man Hours Considered																					
	02	Rate in Rs per ManHour																					
	Notes: 1. No other charges other than specified above will be payable to ESC. 2. Offers which are incomplete or where separate prices are not indicated are liable for rejection. 3. Percentage of taxes & duties considered may also be indicated. 4. Bidder to fill up the above prices manually, put his seal & signature, and submit the same in a separate sealed envelope along with technical offer. 5. Bidder to fill as ' Quoted ' in all above fields and submit the same alongwith technical offer. 6. The price format should be strictly as per above. No other prices/assumptions written separately in the above format are acceptable.																						
(Authorized Signatory)																							
Seal of the Company																							

TD-106-3	Rev No. 5	Form No.		PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD-32		PEMC-02432			
						Rev No. 00			
						Page 4 of 4			
<div>COPYRIGHT AND CONFIDENTIAL</div> <div>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.</div>			RECORD OF REVISIONS						
			Rev. No.	Date	Revision Details	Revised By	Approved By		
			00	10.07.10	First Issue	K.Gunjan	VVSS		
			R	ef					

	 HYDERABAD	Engineering Services of Piping Engineering using PDMS Software	PEMC-02430
		Project : BCPL-Rich Gas Compressor	Rev No. 00
			Page 1 of 3
I	I. SCOPE: The purpose of this document is to provide project specific information to be used as input by Engineering Sub Contractor (ESC) for preparation of offer for subject enquiry. The ESC shall use only PDMS software package to develop the power plant model to generate deliverables like Equipment layouts, Piping layouts, isometrics, stress analysis and supports detailing from 3D modeling.		
	II. INTRODUCTION: BHEL is executing a Plant consisting of 2 Sets of Gas Turbine driven rich gas compressors for M/s Brahmaputra Cracker & Polymer Limited at Duliagan, Assam. M/s EIL, New Delhi is Engineering Consultant for M/s BCPL.		
	Scope Of Supply Of BHEL In The Project Following is the detailed scope of supply of BHEL for information of ESC		
	Gas Turbine Package: 2 nos. gas turbines located indoor along with auxiliaries		
	Rich Gas Compressor Package: 2 nos. Compressors located indoor along with auxiliaries		
	Balance Of Plant(Mechanical): (i) A fuel Gas Conditioning Skid (GCS) – common for 2 nos of GTs driving the Compressors (ii) A fuel gas booster compressor package (Electric motor driven Reciprocating compressor) Common to both GTC trains with 1 working and 1 standby configuration for startup (iii) Interstage air cooled process gas cooler for cooling the compressed gas to be used in GT (iv) Piping : Gas piping from Terminal Point to GCS, GCS to GT, Compressors to Intercooler and GT, Vent piping, Drain piping.		
	III. REFERENCE DRAWINGS FOR ESC: 1. Equipment Layout 0-336-00-36092 2. P&ID for Off base Gas sys 1-38101-03998 (4 sh)		
	IV. SCOPE OF WORK OF BIDDER IN THE PROJECT All items as mentioned in enclosed Specification GT57563.		
	V. MILESTONES FOR PAYMENTS 1. Composite piping layout 10% 2. Revised Eqpt and piping layouts based on comments 10% 3. 3D modeling including logical supports 15% 4. Equipment layouts extracted from 3D model 5% 5. Completion of Stress analysis 7.5% 6. Final piping layouts-from 3D model 10% 7. Final material takeoff-after design audit 5% 8. Isometrics with BOM and linking des nos for all materials 20 % 9. Hanger & Support schedule and Arrangement sketches 7.5% 10. Final Documentation 5%		
	VI. EMD: Rs 20,000/- (Rupees Twenty Thousand Only) to be attached alongwith technical bid.		
	Ref. Doc	Revisions : Refer to record of revisions :	Prepared : B. Hanimi Reddy
			Date : 10.07.10

Form No.		Engineering Services of Piping Engineering using PDMS Software	PEMC- 02430		
		Project : BCPL-Rich Gas Compressor	Rev No. 00		
			Page 2 of 3		

PRICE FORMAT

Enquiry No: HY/PE&SD/L&P/BOP/1234 dtd 13.7.10
Job: Offloading of Piping Engineering Services for STG-GTG projects using PDMS

Project : **BCPL-Rich Gas Compressor**

Name of the ESC:

S.No	Item	Basic Price Rs	Service Tax Rs	Other Tax Rs	Total Rs
01	Lumpsum Price for Engineering Services of Piping Engineering using PDMS Software				

S.No	Item	Draughtsman	Design Assistant	Engineer	Total
01	No. Of Man Hours Considered				
02	Rate in Rs per ManHour				


Notes:

- No other charges other than specified above will be payable to ESC.
- Offers which are incomplete or where separate prices are not indicated are liable for rejection.
- Percentage of taxes & duties considered may also be indicated.
- Bidder to fill up the above prices manually, put his seal & signature, and submit the same in a separate sealed envelope along with technical offer.
- Bidder to fill as '**Quoted**' in all above fields and submit the same alongwith technical offer.
- The price format should be strictly as per above.No other prices/assumptions written separately in the above format are acceptable.

(Authorized Signatory)

Ref. Doc

Seal of the Company

TD-106-3	Rev No. 5	Form No.		Engineering Services of Piping Engineering using PDMS 3D Modeling Project : BCPL-Rich Gas Compressor	PEMC-02430			
					Rev No. 00			
					Page 3 of 3			
<div>COPYRIGHT AND CONFIDENTIAL</div> <div>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.</div>			RECORD OF REVISIONS					
			Rev. No.	Date	Revision Details	Revised By	Approved By	
			00	10.07.10	First Issue	BHR	KS	
			R	ef				