

TTTD-106-1 Rev No. 5	Form No.		PROJECT ENGINEERING & SYSTEM DIVISION BHEL, HYDERABAD –32.	PY51297
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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.	<u>TECHNICAL SPECIFICATION</u> <u>FOR</u> <u>INERT GAS EXTINGUISHING SYSTEM</u>									
	<table border="1" style="width: 100%;"> <tr> <td style="width: 30%;">PROJECT</td> <td>: 2 x 660MW ENNORE SEZ SUPERCRITICAL THERMAL POWER PROJECT AT ASH DYKE OF NCTPS</td> </tr> <tr> <td>CUSTOMER</td> <td>: TAMILNADU GENERATION & DISTRIBUTION CORPORATION LIMITED (TANGEDCO)</td> </tr> <tr> <td>CONSULTANT</td> <td>: DESEIN</td> </tr> </table>					PROJECT	: 2 x 660MW ENNORE SEZ SUPERCRITICAL THERMAL POWER PROJECT AT ASH DYKE OF NCTPS	CUSTOMER	: TAMILNADU GENERATION & DISTRIBUTION CORPORATION LIMITED (TANGEDCO)	CONSULTANT
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		Revisions :	Prepared by:	Checked by:	Approved By:	Date
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		00	D V Prashant Kumar	P Chandrasekhar	MNSR	11/10/2017

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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.		1. INTENT OF SPECIFICATION: The intent of this document is to establish the minimum requirement of design, engineering, supply, selection, selection, manufacture, assembly, inspection, shop testing, shop painting, transportation and delivery at Ennore site in proper condition and supervision of Erection & Commissioning at site for the Inert Gas Extinguishing System, which forms part of the project. The equipment and supply shall conform to high standard of engineering and applicable codes/standards and shall be capable of performing intended operation in a manner acceptable to the Purchaser and end customer 2. SPECIAL NOTES TO BIDDERS 2.1. This specification shall be read in conjunction with all its annexures listed later in this specification. In case of any discrepancy arising between this specification & its annexures, the most stringent of all (as determined by purchaser) shall be followed. Further, if a requirement in this specification or any of the annexures, calls for a decision from the Purchaser, it shall be bidder's sole responsibility to clearly bring out/highlight the same distinctively in his pre-bid queries, so as to enable purchaser to furnish their decision/clarification. If such issues/requirements are not duly addressed by bidder during the pre-bid stage and if such issues/requirements are observed later during order execution stage, it shall be binding on the bidder to comply with the final decision made by the purchaser subsequently, without any cost, delivery, or any other commercial implications. 2.2. All materials supplied under this contract shall be new and unused. 2.3. All equipment/items as applicable, shall be UL/FM/VDS/LPCB approved. 2.4. Any additional equipment, material, services etc., which are not specifically mentioned in this specification, but required to make the IGES complete in all respects, in accordance with the intent of this technical specification, contractual agreement, statutory requirements, relevant/applicable codes/standards, good engineering practices, and for safe and trouble-free operation, shall be deemed to be covered under the scope of this specification. 2.5. All mounting hardware/ accessories/fittings etc. required for the erection of Inert gas Extinguishing System shall be included in the scope of bidder and the same shall be included in the base price even if such items are not explicitly mentioned in this specification.		
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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.		2.6. The Bidder shall accept full responsibility for the completeness and for the faultless working of all the equipments and the IGES system as a whole. 2.7. Bidder to note that the Purchase Order for the entire IGES system for the project shall be placed on lump sum fixed prices based as per tender specification requirements. 2.8. Bidder offer shall be strictly as per these specification requirements. Unsolicited or Alternate offers from the bidders will not be entertained. 2.9. In case bidder feels that it is necessary to exclude some components of scope of supply or some of the features of specification requirements due to any technical constraints, bidder shall bring the same to the notice of purchaser during pre-bid stage and take their prior approval before submission of their bid. Format for pre-bid queries is attached to this specifications. 2.10. The design information, specifications and drawings indicate the "Minimum" requirements and are intended to enable Bidders to ascertain the extent of the work involved. Bidders are expected to supplement the information included in this specification as required and submit a comprehensive bid. 2.11. Bidder to refer to the Special Conditions of the contract (SCC) & General Conditions of the Contract (GCC) of tender specifications. 3. PROJECT DESCRIPTION <table border="1" data-bbox="362 1159 1442 1646"> <tr> <td>1</td> <td>Owner</td> <td>Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)</td> </tr> <tr> <td>2</td> <td>Project</td> <td>Ennore SEZ project of 2 x 660 MW Coal Based Super Critical Thermal Power Project at ash dyke of NCTPS</td> </tr> <tr> <td>3</td> <td>Location</td> <td>Ash dyke of North Chennai Thermal Power Station (NCTPS)</td> </tr> <tr> <td>4</td> <td>Latitude & Longitude</td> <td>13°17' N to 13°18' N; 80°18' E to 80°19' E</td> </tr> <tr> <td>5</td> <td>Consultant</td> <td>Desein</td> </tr> <tr> <td>6</td> <td>Nearest Airport</td> <td>Chennai (~60 kms)</td> </tr> <tr> <td>7</td> <td>Nearest Railway Station</td> <td>Athipattu Pudunagar (~5 Km)</td> </tr> <tr> <td>8</td> <td>Nearest Seaport</td> <td>Ennore (~5 Km)</td> </tr> </table> 4. PRE QUALIFICATION CRITERIA Bidder shall note and comply with the pre-qualification criteria mentioned in Annexure-18. Bidder shall provide the information along with supporting documents.			1	Owner	Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)	2	Project	Ennore SEZ project of 2 x 660 MW Coal Based Super Critical Thermal Power Project at ash dyke of NCTPS	3	Location	Ash dyke of North Chennai Thermal Power Station (NCTPS)	4	Latitude & Longitude	13°17' N to 13°18' N; 80°18' E to 80°19' E	5	Consultant	Desein	6	Nearest Airport	Chennai (~60 kms)	7	Nearest Railway Station	Athipattu Pudunagar (~5 Km)	8	Nearest Seaport	Ennore (~5 Km)
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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.		5.1. IGES system shall be designed to operate as and when required in 24 hours per day and 365 days in a year. 5.2. The life span to be considered in the design, equipment and component selection shall be a minimum of 20 years. 5.3. For the design of the plant, it is necessary not only to consider the requirements of operation, but also, by suitably planning the layout, the convenience of inspection, cleaning, maintenance and repair. 5.4. In order to achieve the reliability, high efficiency and safe operation of the plant, it is also necessary to consider various precautions to safeguard the operating and maintenance personnel. 5.5. The design of the plant shall ensure that the plant can adapt itself to load, pressure (in the state of normal operation) with primary parameter variation within the allowable range of design. 5.6. After award of work, before finalizing especially the layout/Zones of system, pipe routes and other services, the bidder shall carry out a site survey to identify the location & details of existing facilities that may interfere with his proposed facilities. He shall suitably modify his layout/levels to prevent dislocation of existing facilities without any commercial implication to the purchaser. 5.7. The dimensions of the cylinder room (10m x 10m) for each inert gas extinguishing system is already finalized and cannot be changed now. Bidder to select the system (as per NFPA-2001 guidelines) to which while meeting the intended requirement as per the specification and shall be properly housed in the inert gas cylinder room. Adequate space for Operation & Maintenance of cylinder shall also be considered while selecting the inert gas system. 5.8. If during the execution of works it is found that there is interference with other facilities / structures, the Bidder shall revise his design/detailed drawings to clear the interference and shall provide all necessary measures for the safety of structures under construction. No claim in terms of cost or relaxation in time shall be entertained for any redesign, rework and for the safety measures provided. If at any stage of work, any dismantling or modification or relocation of any facilities is required to be done to complete the work in bidder's scope and which has been agreed by the Purchaser, the same shall be done by the bidder at no extra cost or time implication to the Purchaser. All such changes will be executed only after the proposed drawings and work plan are approved by the purchaser. 5.9. The Bidder shall take all necessary precautions to protect all the existing equipment, structures, facilities and buildings etc. from damage. In case any damage occurs due to		
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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.		the activities of the Bidder on account of negligence, ignorance, accidental or any other reason whatsoever, the damage shall be immediately made good by the Bidder at his own cost to the satisfaction of the purchaser. 5.10. The Bidder shall also take all necessary safety measures at his own cost, to avoid any harm or injury to his workers and staff from the equipment and facilities of the power station. 5.11. Supplies shall be rendered in conformity with proven design principles. The purpose of this contract must be fulfilled in its entirety and the maximum of reliability and economy guaranteed. All the components shall be so designed that repairs and overhauling is minimum and can be carried out easily in the shortest possible time. 5.12. Bidder is also required to provide on the job training to Purchaser /End Customer's operation personnel by associating them in all the day to day pre-commissioning, commissioning and maintenance activities and process operations, however, responsibility for adequate manning the system shall be that of bidder. The cost of all such training shall be deemed to be included in the price quoted by the bidder. Bidder shall not be eligible to raise any extra claim in this regard. 6. APPLICABLE CODES & STANDARDS i. The design, engineering, installation, testing, commissioning of the package shall be as per all relevant & applicable codes/standards, however specifically the following : ➤ NFPA 2001: National Fire Protection (Standard on Clean Agent Fire Extiguishing System) ➤ VDS – Flow calulations of the system ➤ UL/FM/LPCB/VdS approval for IGES equipment such as cylinders, contact gauges, pressure regulators etc. ➤ ASTM A 106 - Piping ➤ ASTM A 105, Grade WPB, ANSIB-16.9 for 65 NB & Above - Butt Weld Fittings ➤ ASTM A-105, ANSI B-16.11 for 50 NB & Below – Socket Weld Weld fittings ➤ ANSI B-16.5, Class 1500 # - Flanges ➤ IS 2932 : Enamel , synthetic , Exterior ➤ IS:1248(Part I)-1983 -Direct acting indicating analogue electrical measuring and their accessories: Part I General requirements(Second revision)		
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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.		➤ IS:1248(Part II)-1983 -Direct acting indicating analogue electrical measuring instruments and their accessories: Part II Ammeters and Voltmeters (Second revision) ➤ IS:6236-1971-Direct recording electrical measuring instrument (Reaffirmed 1987) ➤ IS: 2419-1979 -Dimensions for Panel mounted indicating & recording electrical instruments (first revision) (with Amendment No.1.) ➤ IS:8573-1977 -Digital electronic DC voltmeters and DC electronic analogue-to-digital convertors(with Amendment No.1) (Reaffirmed1991) ➤ ANSI B 16.5 - Pipe flanges and flanged fittings. ➤ SMPV rules , PESO Nagpur (For Storage Cylinders) ➤ Clean Agent Manufacturer’s recommendations ➤ VDE: 0150, protection against corrosion due to stray currents from DC installations. ➤ Statutory Requirements i. Requirements of the following local statutory authorities (as applicable) shall be taken into account for compliance: a. Tariff Advisory Committee (TAC) Guidelines (for Insurance purposes) b. VDE : 0150, protection against corrosion due to stray currents from DC installations. c. DIN : 30676 d. Requirement of Petroleum & Explosives Safety Organization (PESO), Nagpur, India. ii. Latest edition of applicable codes/Standards/Statutory Regulations referred to in the Bid Document shall correspond to the edition as on the date of issue of bid. iii. All addenda including the latest addenda to all the above codes and standards (latest editions) shall be followed by the bidder. iv. All the legal formalities including preparation of documents, furnishing clarifications, information etc. as and when required, for obtaining any of the permissions and approvals related to the IGES will have to be done by the bidder.		
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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.		Bidder to follow all other applicable statutory rules and regulations of India during manufacturing, procurement & transportation of the IGES components. 7. BIDDER'S SCOPE OF SUPPLY The Inert Gas Extinguishing System (IGES) of this project shall cover the following areas which are included in bidder's scope of supply and supervision of erection & commissioning: - Central Equipment Room (CER) - Unit Control room, C&I Engg. room, Shift, Shift Incharge room & Computer room Following is the scope of supply required for protection of the above mentioned areas: 7.1. One (01) Inert Gas Release Panel. 7.2. 1 lot of Inert Gas Cylinders required for the system along with same no. of standby cylinders. Including solenoid valves, directional valves, pilot manifold etc. and shall be FM/UL/Vds/LPCB approved. 7.3. 1 Lot of Piping & fittings, pressure gauges, nozzles, threadolets, weldolets, socketolets & all other equipment/accessories required for completion of system. 7.4. One lot of Cables including interface cables with Fire Alarm panel , Conduit and related erection hardware. The input drawings are furnished along with the specification. The same may be used for estimation of cables. However, for quoting purpose bidder to consider a cable distance of 100 mtrs between Gas Release panel and Fire Alarm panel. 7.5. One lot of Inert gas Discharge Warning Signs 7.6. One lot of gas discharge EPB & inhibitor unit 7.7. One lot of Pressure Operated Switches 7.8. One lot of Pressure Relief Vents 7.9. First Fill of consumables 7.10. Erection & Commissioning spares 7.11. One lot of erection hardware		
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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.		ii. Panel shall be located in inert gas cylinder room. iii. The panel shall be provided with automatic Electronic battery charger unit, which will keep the backup batteries fully charged. The panel has various input/output modules. Each indication and control is labeled with easy to understand making it very simple to understand. iv. 230V AC UPS, 1 phase, 50Hz shall be provided at one point for Gas release panel. Further distribution if needed shall be in bidder's scope. v. The control panel consists of a lockable front door fitted with a 3 mm thick acrylic sheet, enabling visualizes the various indications and controls within the housing. The unit shall be designed in such a way so as to facilitate servicing. Cable entry shall from Bottom and removable plate shall be provided for cable entry. vi. Its use ability to utilize conventional devices any make, MCP and potential free contact shall be read from other panel. It shall be the most flexible and reliable system in the life safety field. Panel shall be capable of monitor each zone cable and DV, Cylinder sol. valve. vii. Suitable selector switches shall be provided for "Main/ Standby" cylinder bank supply selection. However, irrespective of above selection, facility for auto changeover from main to standby cylinder bank and vice-a-versa shall be provided in case when there is a failure of Gas release. viii. Facility for manual release of gas/manual abort of gas release through push buttons shall be provided along with selection facility of "Auto/Manual" from the panel. ix. Bidder to also note that the provision for monitoring the pressure of inert gas cylinders(both main and standby) shall be made available. Potential free contacts for displaying the status of pressure of each inert gas cylinder shall be provided. x. Following are the minimum signals required through potential free contacts of gas release panel: • Pre-Discharge (one each for each zone) • Gas Discharged (one each for each zone) Any other signals for which potential free contacts are required shall be finalized during detailed engineering. 8.2. Inert Gas Cylinders: i. 2 sets of inert gas cylinder (one working + one standby) batteries for each of the IGES shall be provided in a separate Clean Agent Room and securely installed with a provision for convenient individual servicing. ii. The design pressure for storage cylinders shall be suitable for the maximum pressure developed at 55°C and shall be designed to meet the requirements in NFPA-2001. iii. All cylinders shall bear the marking as detailed out in NFPA - 2001 and shall be duly listed by UL / FM / VDS / LPCB in addition to approval by CHIEF CONTROLLER OF EXPLOSIVES – INDIA.		
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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.	i. Pressure relief vent area, or equivalent leakage area, shall be calculated and provided for the protected enclosure to prevent development, during system discharge, of a pressure difference across the enclosure boundaries that exceeds a specified enclosure pressure limit. 8.9. First Fill of Consumable: i. All the first fill consumables like gas etc. and replacements, if any, are in bidder scope till successful handing over of plant to BHEL after successful completion of erection and commissioning and /or site performance test. ii. Price of these items shall be construed to be included in the main package price. No separate price for the same shall be offered. 8.10. Erection & Commissioning Spares i. All commissioning spares as required during erection and commissioning of the Inert Gas Extinguishing system is included in bidder's scope. ii. Bidder to ensure that all the spares are procured from the original equipment manufacturers (as per their recommendation) and shall make them available at site well before the start of commissioning activities. iii. All spares having a shelf life shall be dispatched to site only after completion of major erection activities. The dispatch schedule of these spares shall however be planned in a way that in doesn't delays any commission activity. iv. Bidder shall also ensure supply of all erection & commissioning spares along with main equipment as per his experience, for replacement of damaged or unserviceable ones during the execution of the project by bidder at site, to avoid delay in the project schedule. v. Price of all the above items shall be construed to be included in the main package price. No separate price for the same shall be offered. vi. Any equipment not specifically mentioned above but required for satisfactory operation of complete Inert Gas Extinguishing system and to meet desired intent of specification shall be included in scope of supply of bidder. vii. Such requirements, if any, whenever noticed during any stage of order execution shall be deemed to be included in bidder's scope without any commercial implication to purchaser. 8.11. Special tools and tackles: i. The bidder shall furnish the following minimum special tools required for operation and maintenance of the system supplied, as a part of scope of supply: <table border="1" data-bbox="388 1814 1385 1892"> <thead> <tr> <th>Sl. No.</th> <th>Description</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Multimeter</td> <td>1 no.</td> </tr> </tbody> </table>			Sl. No.	Description	Quantity	1.	Multimeter	1 no.
	Sl. No.	Description	Quantity						
1.	Multimeter	1 no.							
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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.	<table border="1"> <tr> <td>2.</td> <td>Hand drilling machine with complete set drill bit</td> <td>1 set</td> </tr> <tr> <td>3.</td> <td>Hammer</td> <td>1 no.</td> </tr> <tr> <td>4.</td> <td>Hexaframe</td> <td>1 no.</td> </tr> <tr> <td>5.</td> <td>Instrument Box</td> <td>1 no.</td> </tr> <tr> <td>6.</td> <td>Insulation Pliers</td> <td>1 no.</td> </tr> <tr> <td>7.</td> <td>Nose Pliers</td> <td>1 no.</td> </tr> <tr> <td>8.</td> <td>Screw Driver</td> <td>1 no.</td> </tr> <tr> <td>9.</td> <td>First Aid Box</td> <td>1 no.</td> </tr> </table> Any other tools required for repairs and maintenance but not mentioned above shall be supplied by the bidder. ii. All special tools and tackles which are necessary or convenient for erection and commissioning of the Inert Gas Extinguishing System shall be supplied at site by bidder. Price of these items shall be construed to be included in the main package price. No separate price for the same shall be offered iii. All the special tools and tackles shall be shipped in separate heavily constructed wooden boxes. Notes: - All Tools and tackles required for dismantling, maintenance, adjustment, and calibration of the all the equipments that form part of Inert Gas Extinguishing System shall be supplied. - Bidder shall provide all equipment like trolleys, etc. required for Refilling & Maintenance of Inert Gas cylinders. - Bidder to note that if at a later stage the requirement of any other special tool & tackles is required for the Package, same has to be supplied by bidder without any delivery or commercial implication. Decision of the Purchaser regarding the requirement of any additional tools and tackles will be final and binding on the Purchaser. - All special tools and tackles shall be handed over purchaser, prior to the issuance of the PROVISIONAL ACCEPTANCE CERTIFICATE for the IGES. 9. BIDDER'S SCOPE OF SERVICES 9.1. Supervision of erection & commissioning - Supervision of erection, commissioning & performance testing at site for the supplied system shall be included in bidder's scope of service. - Bidder to note that the supervision charges for erection & commissioning shall consists of the following:			2.	Hand drilling machine with complete set drill bit	1 set	3.	Hammer	1 no.	4.	Hexaframe	1 no.	5.	Instrument Box	1 no.	6.	Insulation Pliers	1 no.	7.	Nose Pliers	1 no.	8.	Screw Driver	1 no.	9.	First Aid Box	1 no.
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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.		ii. Clean agent concentration requirement shall be computed considering the volume of the hazard as specified. In addition to the concentration requirement as specified, 20% of the gas quantity as computed above , shall be added to compensate for leakages and extinguishing efficiency. The bidder, as per NFPA-2001, shall work out the quantity of clean agent. However, bidder drawing shall quote minimum quantity of agent for volume as given in the scope. 10.1.4. The principle of operation shall be as follows : i. Whenever there is a fire in any of the rooms protected, the same will be detected by the automatic fire detector. It will in turn annunciate a fire signal in the MFAP. The first detection signal will actuate the hooters in the room and warning lights, so as to warn the people to evacuate and prevent people from entering the room. When, at least another automatic fire detector in the room registers a fire condition, the necessary fire dampers in the AC / Ventilation system will get closed (from their respective panel/s based upon confirmed fire signal from the MFAP), the clean agent extinguishing system will get actuated and the time delay for the release starts (normally 10 seconds however shall be based on the recommendation of the bidder). After the time delay elapses, the clean agent is released. The release mechanism operates by opening the electrical actuator of the pilot cylinder, which then in turn open the quick opening valve of the designated slave cylinders, and thus releasing the gas in the manifold. The gas then is carried through piping to the room in fire and released through the nozzles located strategically in the room. The gas is maintained in the room for a specified period of time (about 10 min. however shall be based on the recommendation of the bidder), during which the fire is extinguished. ii. In case, it gets known during the time delay period before release, that there is no fire but the alarm is false alarm, the gas release can be aborted by pressing the abort switch. Also, if due to any reason it is found that the gas is not getting released even after the time delay period, a manual release can be initiated by pressing the manual release button. iii. The system shall be designed based on the single largest risk area of the control room to be protected. However, the grouping of cylinders shall be made in such a way that discharge takes place corresponding to the volume of the risk under fire. iv. The system shall include electrically actuated automatic Clean Agent Fire Extinguishing System complete with filled up Clean Agent cylinders cylinder rack, manifolds, Pressure reducing devices, cylinder valves, pipes, discharge nozzles, bracket support, hangers, and such other fittings as necessary for complete installation of the system required to install the system.		
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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.		12.3. Bidder shall confirm complete basis of design, all calculations, equipment selection criterion, layout drawings/schemes/G.A. drawings and documents like data sheet, technical particulars etc. shall be subject to CUSTOMER and/or BHEL approval during detailed engineering stage. 12.4. Bidder shall confirm that all drawings and documents shall be AutoCAD based. For inputs from customer, BHEL will extend all efforts to get the same in soft copy, but there is no commitment about editable soft copy. 12.5. Bidder to meet the codes and standards indicated in the specification. 12.6. Bidder shall note that quality plan shall be subject to CUSTOMER & BHEL approval after award of contract i.e. during detailed engineering. All comments as given by BHEL/ customer shall be taken care by bidder without any commercial & delivery implication. 12.7. Bidder to comply with sub-vendor list enclosed with the specification. If any item is left over other than indicated in the sub-vendor list, sub-vendor name shall be furnished during detail engg. subject to BHEL/ customer approval. Non-acceptance of any sub-vendor by BHEL / customer shall not have any commercial & delivery implication. 12.8. Bidder to confirm that the performance guarantee of the equipments shall be as per data meeting specification requirements and system requirement. 12.9. Bidder to confirm acceptance to furnish drawings/documents as per the drawings / documents distribution as per project requirements. 12.10. Bidder to confirm that instruments required for performance testing of various Equipments / systems of the package shall be arranged by bidder at site without any cost Implication to BHEL. 12.11. Bidder to confirm that all instruments for testing shall be calibrated before taking up testing. 12.12. Bidder shall furnish one set of catalogue for equipment items offered for this package. 12.13. Bidder to confirm that entire IGES System shall be subject to approval by TAC accredited agency to qualify maximum premium discount. Complete documentation required for obtaining TAC approval shall be furnished by bidder. 12.14. Painting to suit environment for all equipments / items for this package shall be in the scope of IGES system bidder. 12.15. Engineering of the cables, cable routing and cable schedule shall be in the scope of bidder. 12.16. Instruments used in hazardous areas shall generally be intrinsically safe and shall be selected based on entity parameters. If intrinsically safe item is not available for any instrument, then it must be flameproof.		
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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.		13. EXCLUSIONS The following items are excluded from bidder scope of supply:- a) Storage, preservation of Materials/Equipments at site (however detailed storage and preservation procedure shall be furnished by bidder). b) Erection and Commissioning (however supervision of Erection and Commissioning is in the bidder's scope) 14. MARKING, PACKING AND DISPATCH 14.1. Marking i. All items shall be marked (stamped/etched) in accordance with the applicable code/standard/specification. In addition, the item code, if available, shall also be marked. ii. For ease of identification, the color of painted strip (wherever required) shall be as per the applicable standard. iii. Paint or ink for marking shall not contain any harmful metal or metal salts which can cause corrosive attack either ordinarily or in service. Special items/smaller items shall have attached corrosion resistant tag providing salient features. 14.2. Packing i. Bidder shall ensure proper packing of IGES equipment before dispatching. All items shall be dry, clean and free from moisture, dirt and loose foreign material of all kinds. ii. IGES system shall be supplied in packaging marked with the purchase order no., item code (if available), and the salient specifications. iii. Special notations such as 'Fragile', 'This side up', 'Center of gravity', 'Weight', 'Owner's particulars', 'PO Nos.' etc. if required shall be clearly marked on the package together with other details as per purchaser order. iv. The equipment may be stored outdoors for long periods before installation. The packing shall be completely suitable for outdoor storage in areas with heavy rains/high ambient temperature, unless otherwise agreed.		
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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.		v. Prior to shipment components of the unit shall be completely cleaned. All the componenets of the system shall be properly packed to prevent damage during transit damage, loading, unloading and storage. vi. Spare parts if applicable shall be packaged separately and clearly marked as ‘Spare Parts’. 14.3. Dispatch i. Inert Gas Extinguishing system shall be properly packed for transportation by ship/rail or trailer. ii. Bidder shall obtain clearance from BHEL for dispatch of all the IGES components. Bidder must make request for dispatch clearance to BHEL in advance before the expiry of delivery date of P.O. iii. No claims of bidder will be accepted, on account of delay in requisition for dispatch clearance. iv. Prior permission from BHEL shall be taken before dispatch of any of the item having shelf life. Bidder to note that any eventual delay on account of this will not be attributable to them. v. The mandatory spares shall be treated and packed for long storage (minimum five years) under the climatic conditions prevailing at the site. Mandatory spares should be supplied separately with green colour painted box. vi. A separate document indicating the details of all the items having SHELF LIFE shall be furnished. Prior permission from BHEL shall be taken before dispatch of any of the item having shelf life. A packing list covering items having shelf life are to be intimated to site. Also, shelf life items shall be packed separately in black color painted box for easy identification at site. vii. Loose vendor items sent to sites shall be quantified/numbered/tagged and not merely mentioned as ONE lot of loose items. 15. DOCUMENTATION 15.1. Bidder shall submit the list of documents as mentioned in Annexure-2 as per the schedule mentioned.		
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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.		15.2. Bidder to note that the dates of submission of all the documents shall be finalized by him considering the time required for approval of various documents at Purchaser's end. It shall be solely bidder's responsibility to get approval on the entire document from purchaser to meet project schedule. 15.3. Drawings / Documents Review And Approvals i. The bidder's documentation shall be in accordance with this specification, codes/standards and good engineering practices. The discrepancies/deviations found in documentation of bidder shall be implemented by bidder without commercial implications. ii. Any delay on the part of bidder's documentation shall be to bidder's account only. iii. All the dimensions should be in S.I. units. iv. All documents before forwarding to Purchaser will have to be vetted in detail by bidder. Document received without vetting will be returned without review. Also any inaccuracies/mistakes found will not only be rectified by the bidder but the bidder shall remain liable for bearing charges towards efforts spent by Purchaser for discussing the same. Delay owing to these shall be to the account of bidder v. The bidder shall thoroughly review and submit the documents before forwarding to Purchaser vi. Only the approved drawings duly stamped and signed by a competent engineer of bidder shall be submitted to purchaser for review. vii. Documents submitted without meeting pre-requisite requirements will be returned without review. viii. Review of drawings and documents issued by bidder shall be carried out by Purchaser /End customer. ix. Approval/ review of the drawings/ documents by the Purchaser /End customer would be only limited to the review of compatibility with basic designs and concepts. x. The approval and /or review by the Purchaser /End customer shall not be construed by the bidder as limiting any of his responsibilities and liabilities for mistakes and deviations from the requirements, specified under these specifications and drawings.		
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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.		xi. The Bidder shall be responsible for and shall pay for any alterations of the Work to be accrued out by other agencies due to any discrepancies, errors or omissions in the Drawings or other Particulars supplied by him whether such drawings or particulars have been approved by the Purchaser/ End customer or not. xii. Revisions in drawings/documents shall be clearly marked within clouds. No revision without clouding shall be recognized and the same shall not be considered reviewed and approved. All revised drawings / documents shall be associated with comments compliance report. xiii. First submission of the drawings / documents shall be made by bidder within 30 days from P.O placement. xiv. Normally the first submission of drawings / documents shall be reviewed by the purchaser with 14 calendar days of receipt of drawing at Purchaser's end. 14 days shall be reckoned from the date of receiving hard/soft copy of the documents at purchaser's center. xv. All revised drawings / Documents shall be submitted by Bidder in 07 days of receipt of comments / observations from BHEL. BHEL shall revert within 07 days on receipt of these revised documents / drawings from Bidder. xvi. Engineering shall be considered completed once all documents mentioned in Document list (Annexure-2) are submitted and applicable approvals are obtained from BHEL. 15.4. Document Submission Procedure i. All Drawings/Datasheet etc. shall be submitted in soft as well as hard copy. Soft submission of all drawings/data sheets is mandatory. ii. First submission of the set of documents shall be submitted within 30 calendar days of LOI/ PO. iii. Bidder shall furnish all documents in A4 Size (210 mm x 297 mm) paper or folded in A4 size unless otherwise specified. All drawings and sketches shall be in multiples of A4 size like A3 (297 mm x 420 mm) or A2 (420 mm x 594 mm) etc., but folded to 'A4' size. iv. It has been observed that at times mails fails to deliver because of problem in sender's /receiver's server .Hence it is recommended that bidder shall intimate concerned BHEL personal about any soft copy submission over phone immediately after any drawing / document is submitted for BHEL's review / approval.		
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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.		v. Final documentation shall be submitted in bound volumes and softcopy shall be furnished in non - writable CD. vi. Bidder shall submit 6 sets of hard copies of final approved drawings & two sets of hard copies of first submission drawings. vii. Hard copies of all the documents shall be forwarded to the following address: Name: (Name will be intimated during awarding of the contract) Address: Bharat Heavy Electrical Limited Administrative Building Purchase dept., PESD RC Puram Hyderabad- 32 viii. Date of receipt of hard copies shall be considered as date of submission of any document. Soft copy submission shall be considered as advance submission of drawing/document ix. BHEL shall furnish Approval/Observation of Drawings/Datasheet/Design calculation etc. in Soft Copy only. 15.5. Data Sheets Bidder shall provide data sheets of all Inert Gas System components in line with the specifications. 15.6. Erection & Commissioning Documentation 15.6.1. Erection documentation i. Erection document List shall be prepared during Engineering review meeting (after award of contract) identifying all the DOCUMENTS / DRAWINGS required for completion of Erection activities of the complete system, to be submitted by the bidder as part of documentation. ii. The Bidder shall submit for Purchaser's approval draft manual for Equipment Delivery and Erection (EDE Manual) covering detailed instructions, write up, technical data, drawings, check-lists, documentation formats for all activities after equipment manufacture upto installation of equipment. This manual shall cover general instructions for all equipment and specific instructions for individual equipment wherever required and shall include at least the following : • Instructions for packing, shipping, receiving, handling, ware-housing and storage.		
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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.		• Part number/Dispatch link-up of all the equipments/items supplied and also their co-relation with system/drawing/approved BOQ. • Instructions for location and installation of equipment furnished by this specification. • Installation drawings for field mounted equipment, panels, cubicles and other equipment covered under this specification. • Instruction relating installation of piping/ tubing, support and routing drawings of impulse pipes/signal tubes and tube/cable trays. • Check lists and quality assurance hold points. • Formats for all related documentation. • The EDE Manual shall conform to the requirements of this specification, all applicable codes and standards, recommendations of equipment manufacturers and accepted good engineering practices and shall be subject to Employer approval during detailed engineering. • The Bidder shall ensure that all work under this part shall be performed as per the requirements of this specification, Employer approved EDE Manual and drawing/documents approved by the Employer during detailed engg. 15.6.2. Erection Manuals i. The erection manuals shall be submitted at least three (3) months prior to the commencement of erection activities of particular equipment/system. The erection manual should contain the following as a minimum. • Erection strategy. • Sequence of erection. • Erection instructions. • Critical checks and permissible deviation/tolerances. • List of tool, tackles, heavy equipments like cranes, dozers, etc. • Bill of Materials • Procedure for erection. • General safety procedures to be followed during erection/installation. • Procedure for initial checking after erection. • Procedure for testing and acceptance norms. • Procedure / Check list for pre-commissioning activities. • Safety precautions to be followed in erection all equipments and electrical supply distribution during erection ii. Bidder shall provide sufficient written instructions, including a cross-reference list of all drawings for correctly installing the equipment and prepare the equipment for start-up.		
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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.		iii. It shall include any special information required for proper installation that is not on the drawings, special alignment or grouting procedures, utility specifications (including quantity) and all installation data. iv. It shall also contain the following information: • Instructions for erecting, piping, aligning (including the expected thermally induced shaft centerline shift between normal site ambient temperature position and that at normal equipment operating temperature). • A description of rigging procedures, including the lifting of the assembled equipment, and methods of disassembly, repair, adjustment, inspection and reassembly of the equipment and auxiliaries. • Pre-commissioning/commissioning/functional test procedures and acceptance criterion. 15.6.3. Commissioning documentation i. The contractor shall submit the commissioning documentation, comprising of Standard checklists, pre-commissioning procedures, testing schedules, commissioning schedules and commissioning networks for various Equipment / systems covered under the contract, for the approval of employer. ii. Standard checklist, as the name suggests, shall be a fairly general documents, containing the list of all checks required to be carried out for similar and repetitive type of equipment to ensure consistent and thorough checking. iii. The testing schedule is a document, designed for safe and systematic commissioning of individual equipment/sub-system. Commissioning schedule is a document envisaged for commissioning of a system. The testing/Commissioning schedule shall have a standard format in order to maintain consistency of presentation, content and reporting. A brief write up on the contents of the Testing Schedule/Commissioning Schedule is as per the following: iv. Testing Schedules should be designed to ensure that the plant area, equipment or apparatus are tested and commissioned and will operate as per the employer's specifications and good engineering practices. v. Testing Schedule/Commissioning Schedule is required to be of a standard format in order to maintain consistency of presentation, content and reporting. vi. Testing Schedule/Commissioning Schedule should contain the following sections to make the document a self contained one:		
Ref. Doc		• Plant Details/Design data		

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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.	• Testing Objective/Proposals • State of the Plant required prior to commissioning • Erection Status with respect to Mech. Elect and C&I • Services required • Safety requirements • Test method including completion/acceptance criteria • Results • Testing Programme • Mech/Elect/C&I –Plant item completing list • List of Drawing/documents required for carrying out the testing. vii. The contractor shall submit the list of commissioning documentation to be submitted by him, alongwith their submission schedule for various equipment/systems covered under the contract, with in 6 (six) months from the date of award of contract, for the acceptance of employer. viii. The Contractor shall submit the commissioning documentation, for various equipment/covered under the contract, for the approval of employer, at least 12 months before the scheduled date of commissioning of the equipment/systems. ix. Following may be noted wrt the drawing submission schedule: <table border="1"> <thead> <tr> <th>SL NO.</th> <th>DESCRIPTION</th> <th>NUMBER OF COPIES TO BE SUBMITTED</th> <th>WHEN TO SUBMIT</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Initial drawings / documents under approval and information category.</td> <td>2</td> <td>As per approved Master document list</td> </tr> <tr> <td>2.</td> <td>Revised drawings / documents incorporating BHEL's comments.</td> <td>-</td> <td>Within 1 weeks of receipt of commented drawings from BHEL</td> </tr> <tr> <td>3.</td> <td>Final Drawings / documents</td> <td>6</td> <td>Within 2 months of placement of order.</td> </tr> <tr> <td>4.</td> <td>Erection Documentation</td> <td>8</td> <td>1 Month before dispatch of equipment, The list of documents identified under master document list for erection to be furnished in 5 nos. of folders.</td> </tr> <tr> <td>5.</td> <td>Draft O & M Manuals with out test certificates</td> <td>2</td> <td>2 months before the delivery date of</td> </tr> </tbody> </table>				SL NO.	DESCRIPTION	NUMBER OF COPIES TO BE SUBMITTED	WHEN TO SUBMIT	1.	Initial drawings / documents under approval and information category.	2	As per approved Master document list	2.	Revised drawings / documents incorporating BHEL's comments.	-	Within 1 weeks of receipt of commented drawings from BHEL	3.	Final Drawings / documents	6	Within 2 months of placement of order.	4.	Erection Documentation	8	1 Month before dispatch of equipment, The list of documents identified under master document list for erection to be furnished in 5 nos. of folders.	5.	Draft O & M Manuals with out test certificates	2	2 months before the delivery date of
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Ref. Doc	15.7. Input drawings i. List of inputs as envisaged by purchaser is attached in annexure-8. ii. On receipt of order, it shall be solely the bidder's responsibility to spell out the requirement of the base engineering drawings/documents (required by him over and above the data furnished along with this specification) to go ahead with the engineering of the package within a week, and shall not expect the Purchaser to automatically supply the same after order placement – the required base drawings/documents shall be furnished to the Bidder within one week (1 week) of receipt of such requisition from Bidder. Any ultimate delay arising out of the delay by the successful bidder in putting up such a requisition shall solely be to the bidder's account. iii. List of major inputs required for engineering of the system shall be prepared during kick off meeting or 15 days after the award of contract. It is bidder's responsibility to list out all the major inputs required for engineering. After the award of contract, in case there is a delay in supplies, bidder's delivery extension shall be processed based on this inputs list only. Apart from this list any other inputs required will not be considered for delay analysis. iv. Drawings attached with this specification are preliminary in nature & are not exhaustive. These drawings may get revised and /or new drawings will be furnished to bidder during detail engineering .Bidder to however note that they will not be eligible to raise any extra charges on account of this. v. Required drawings/documents shall be furnished to Bidder within 14 days of placement of P.O. vi. Drawings attached with this specification are preliminary in nature & are not exhaustive. These drawings may get revised and /or new drawings will be furnished to bidder during detail engineering .Bidder to however note that they will not be eligible to raise any extra charges on account of this.																			

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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.		related plans to the "as built" stage including all Sub-Vendor drawings and furnish Purchaser with the following : • 6 complete sets of full size prints of the drawings and 4 sets of reduced size prints. • 6 complete bound sets of Manufacturer's specifications including design calculations. • As Built drawings generated specifically for this job in electronic media (AutoCAD 10 or above). • All vendor drawings & documents either in AutoCAD or in scanned images stored in electronic media. • 6 complete sets of all operating & maintenance instructions in electronic media or in scanned images converted in electronic media. • 6 complete sets in hard binders of the Manufacturer's data book including certified prints and data for all items including test reports. Data Book shall be complete with index as tag numbers associated with Manufacturer's data shown. Equipment data shall include as a minimum requirement the principal and description of operation, drawings and dimensions, spare parts lists and unpriced purchase orders and bill of materials. • 6 bound copies each of the Spare Parts data book and the Lubricants inventory schedule. • 6 complete sets of field records shall be signed by the CONTRACTOR'S and Owner's representatives at the site. • Original approvals and related drawings and documents from the statutory authority. • 3 Copies of correspondence with the statutory authorities. 15.10. Utility Requirements i. This document lists out the following information regarding utilities required by the bidder • List of utilities required i.e. Power (UPS, Non UPS), Instrument air. • Location and estimated/actual requirement at each location. The requirement shall be listed as minimum/normal/maximum. • In case of AC power, the In-rush current with duration and power factor shall also be indicated for each location. 15.11. Operation and Maintenance Manual i. Bidder shall prepare and submit draft maintenance manual to Purchaser for review at least three months prior to the mechanical completion.		
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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.		ii. Final maintenance manual incorporating all comments shall be submitted by bidder within one month after issue of comments. iii. This manual shall provide sufficient written instructions and data to enable purchaser to correctly operate and maintain the equipment ordered. iv. It shall include a section to cover special instructions for operation at extreme environmental and/or extreme operating conditions. v. Maintenance manual shall contain the following chapters as a minimum: • Introduction to the system/unit maintenance • Equipment/facilities register • Location and list of all system/unit equipment. • Equipment record card • Equipment No. and name. • Equipment serial No. and manufacturer details 15.12. Reporting The bidder shall submit the following reports on regular basis for Purchaser's information / review. i. Monthly Progress Report . The report shall be submitted on monthly basis within 5 calendar days from cut-off date covering overall scenario of the project . ii. Weekly Progress Report (Overall). This report shall be prepared by bidder and issued on weekly basis to Purchaser. The report shall include the following: • Executive Summary • Project highlights with dates of achievements • Project exception (work programmed but not achieved with reasons for non- achievement) and work programmed for next week • Critical areas • Actions taken/to be taken for slippages • Progress statistics This shall cover both for Bidder's Home/Design office activities and construction activities at site.		
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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.		iii. Weekly Progress Report (Construction) This report shall be prepared by bidder and submitted on weekly basis within 1 calendar day from cut-off date. The report shall cover following items. • Progress statistics • Work item wise quantity completed against programme for the week including • Reasons for shortfall. • Programme for next week • Work Front available • Constraints, if any • Resources deployed against planned with reasons for shortfall in resource deployed • List of equipment/materials received at site during the week iv. Expediting Report Bidder shall submit fortnightly expediting report based on his representative's visit to vendor's work for orders where delivery of materials is critical to project completion. A list of such critical items/vendors shall be specified by Purchaser during the kick-off meeting or at a later date. In addition to the above, purchaser may request expediting report based on visit of bidder's representative in case of orders which were though not critical at the time of order placement become subsequently critical during project execution due to any reason. 16. PRICE BID FORMAT 16.1. Price bid format is enclosed as Annexure-1, bidder to furnish the offer in line with the same. 16.2. Inert Gas Extinguishing System as envisaged in this bid document shall be quoted by the bidder on Lump sum Turnkeybasis. 16.3. All the items included in the price bid format shall be quoted as per tender specification and pre-bid clarifications, if any. Responsibility of ensuring correctness & completeness of scope of supply as per specification requirement solely lies with bidder. 16.4. Prices quoted by the bidder shall remain firm till the successful handing over of the Fire Protection plant to end customer. Any request for upward revision of price during any		
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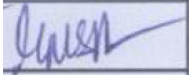
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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED . It must not be used directly or indirectly in any way detrimental to the interest of the company.		intermediate stage before handing over the plant to end customer will be summarily rejected by BHEL. 16.5. Bidder to quote only base rates for all the items, Applicable taxes and duties shall be indicated separately. 16.6. The Priced Bid shall be submitted in Original (without any copy) duly signed and stamped on each page in a separate sealed envelope super scribing “Price Bid –Do not Open” This shall not contain any condition whatsoever failing which the Bids shall be liable to be rejected. In case of any correction, the bidder shall put its signature and its stamp. Eraser fluid will not be allowed for making any correction. 16.7. Bidder shall confirm to the unpriced bid as part of their offer. 17. DEVIATIONS TO SPECIFICATIONS: 16.1 In case bidder feels that it is necessary to exclude some components of scope of supply & some features of specification requirements, due to genuine constraints if any, bidder has to clearly bring out the same to the notice of BHEL and take their prior approval before submission of bid. Bidders are requested to bring out only those deviations which are impractical to meet (or) not technically advisable as per the experience of bidder, for BHEL’s review before the submission of bid. All such clarifications required by the bidder shall be intimated to BHEL together as a single notice within a week of receipt of enquiry by bidder. 16.2 Deviation to specification shall be submitted only in Deviation format (Annexure-9). Deviations mentioned in any other part of the quotation shall NOT be considered. 16.3 In case the bidder considers requirement of additional instrumentation, controls, safety devices and any other accessories/auxiliaries essential for safe and satisfactory operation of the equipment, he shall recommend the same along with reasons in a separate section as a part of pre-bid query to enable purchaser take a suitable decision on the requirement of the same. 16.4 Information like Bill of materials (BOM), Instrument list, datasheets, and typical specifications enclosed by the bidder as a part of their bid, shall be retained for information only and shall not be referred by contractor as contractual agreement. No implication shall be admissible on the basis of these documents during any stage of contract execution. 17 SUB VENDOR LIST 17.1 All the equipment shall be sourced from recommended Bidders only as specified Annexure-12.		
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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.		17.2 Further the supplied model shall be under regular manufacturing range and have Proven Track Record (PTR). (Bidder / sub-Bidder shall have supplied minimum 2 no. in last 7 years, out of which at least one shall be in satisfactory operation for minimum 8000 hours). 17.3 Supply items for which no definite “make/brand” is indicated, shall be procured only from makes & models having proven track records and requires purchaser approval. 17.4 Bidder to comply with sub-vendor list enclosed with the specification. The sub-vendors for any item that is not appearing in the sub-vendor list (annexure-12) may be proposed for BHEL’s approval. Non-acceptance of any sub-vendor by BHEL / customer shall not have any commercial & delivery implication. While submitting sub-vendors for approval of BHEL, bidder shall furnish following documents : i. ISO certificate of Sub-vendors ii. Proven track record & references for makes and models supplied earlier. Note: i. Bidder to note that all IGES equipment such as cylinders, contact gauges, pressure regulators, Gas release Panel etc. shall be UL/FM/LPCB/VdS approved. Cylinders shall also have PESO , Nagpur approval certificate. ii. Bidder shall take prior approval of BHEL w.r.to vendors for procurement of items which are not envisaged in the vendor list. 18 DOCUMENTS ALONG WITH BID The following documents shall be submitted by bidder and the bidder’s offer shall be evaluated on the following: ➤ Duly filled & Signed copy of Check list ➤ Deviation list, if any (as per “No deviation format” given in this specification) ➤ Unpriced price schedule (To be submitted compulsorily without fail) <u>Note:</u> Evaluation shall be done on No Deviation schedule. Even if no deviations are there, bidder shall submit, signed copy of No deviation format. Technical evaluation of offer shall be done based on no deviation schedule only. Any other document submitted along with the offer shall be retained for information only.		
Ref. Doc		19 BILLING BREAKUP METHODOLOGY		

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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.		Billing break-up (BBU) shall be submitted to BHEL in following methodology: 19.1 The BBU shall be prepared only for the pro-rata billing purpose. 19.2 Typical BBU for IGES is attached as annexure-6 of this specification. 19.3 BBU will contain complete list of items required for the completion of the project as per specification and shall be dispatched by bidder irrespective of the items/quantities are indicated in the document or not. 19.4 Any additional requirement of the item already indicated in the document will be updated in the subsequent revision of this document. All such item will be dispatched as “free item” term to BHEL. 19.5 Inspection & Testing of all items shall be as per approved quality plan. The entire item shall be dispatched to site only after the completion of Inspection and testing requirement as per approved quality plan. Non-inclusion of any item does not absolve the vendor from meeting the requirement. 19.6 Vendor shall obtain prior permission from BHEL after submitting all the documents before ensuring dispatch of all main items applicable for project. 19.7 Inspection & quality: All the items applicable for this project shall be inspected as per approved quality plan. It may be noted that any item shall be dispatched to site only after complying with the Inspection requirements as per approved quality plan. 19.8 As separate document indicating the details of all the items having SHELF LIFE shall be furnished. Prior permission from BHEL shall be taken before dispatch of any of the item having shelf life. 19.9 Applicable taxes & duties shall be extra. 19.10 BBU shall be a comprehensive document having details of all the items applicable for this project. There should not be any Non-Billable item to be supplied at site. 19.11 BBU shall be submitted as per “Payment Terms of Annexure-BB” 19.12 Wherever Lot items are indicated, same shall be quantified in details in a separate annexure. Similarly all Accessories/ Instruments/ items are to be defined with comprehensive details. 19.13 In case requirement of any such item / additional item is detected at any stage of the contract execution, BBU will be revised to reflect the same. However all the additional		
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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.		items will be supplied as a ‘Zero Value Item’, without any commercial implication to BHEL. All the contractual requirements shall be valid for these additional items also. 20 DEFINITIONS 20.1 BIDDER: Bidder means the party supplying Inert Gas Extinguishing System for this project. 20.2 SUB VENDOR : Sub vendor means any party on whom bidder suborders materials and items (like tubes, forgings etc). 20.3 Quality Assurance Plan (QAP) / Inspection and Test Plan (ITP) It is a document generated by the supplier with complete listing of various inspection stages, tests, material certification requirements and parties involved with their respective roles in inspection; indicating the requirements of Hold (H),Witness (W) Inspection, and Review (R) of Quality control documents / records for an item. QAP and ITP are considered synonymous. 20.4 THIRD PARTY INSPECTION AGENCY (TPIA) Third Party Inspection Agency means an inspection agency appointed by the EPCC/LSTK CONTRACTOR for carrying out Inspection and witness of tests of equipment and material being procured by the CONTRACTOR for the Project. 20.5 INSPECTION CATEGORY Inspection category determines the scope of Inspection for the Supplier, TPIA / OWNER for various equipment and material depending upon their use, serviceability, safety criteria and complexity. 20.6 MECHANICAL COMPLETION Mechanical Completion of systems shall mean that all installation works of the system have been completed and hydro tested in accordance with approved construction drawings, approved specification, applicable code as defined in the document, accepted international good engineering practices and all the activities have been completed in a comprehensive manner by the bidder. 20.7 PRE-COMMISSIONING ACTIVITIES Pre commissioning activities, which are required to be performed after completion/ installation, inspection, hydro testing etc. of an equipment/ system to make it ready for commissioning.		
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	Rev. No.	Date	Revision Details	Prepared By	Checked By	Approved By	
	00	11/10/2017	Original Issue	<i>Pras Lamb</i>	PCS		
	Ref.						