



**PRE BID QUERIES REPLY LOT-2
(TECHNICAL)
NFL's GTG-HRSG PROJECT AT PANIPAT,BATHINDA & NANGAL**



**NIT NO: PNMM/PC-135..136/E-601 FOR PANIPAT & BATHINDA
NIT NO: PNMM/PC-140/E-601 FOR NANGAL**

PART :1

SL.NO.	REFERENCE OF BIDDING DOCUMENT				BIDDER'S QUERY	OWNER'S / PMC REPLY
	Part/ Sec	Page No.	Clause No.	Subject		
1	Technical_Amendment_01_for_GT G-HRSG_Projects_of_Panipat_& Bathinda_17_05_2017	2 of 205	Sr. No.: 7	Sp Gr : row deleted NCV : 8211 Kcal/SM3 & 32562 BTU/SM3	We understand that NCV specified as 8211 Kcal/SM3 & 32562 BTU/SM3 is of fuel composition for Lean natural gas as specified in Tender PNMM/PC135..136/E-601/P-II/Sec.-2A , clause number 1.6, pg. no. 317 of 1897., Same is to be considered for performance Guarantee.Please confirm.	As per NIT, Sec-12.0, Clause 2.6.3
2	Technical_Amendment_01_for_GT G-HRSG_Projects_of_Panipat_& Bathinda_17_05_2017	2 of 205	Sr. No.: 8	Sp Gr : row deleted NCV : 8211 Kcal/SM3 & 32562 BTU/SM3	We understand that NCV specified as 8211 Kcal/SM3 & 32562 BTU/SM3 is of fuel composition for Lean natural gas as specified in Tender PNMM/PC135..136/E-601/P-II/Sec.-2B , clause number 1.6, pg. no. 338 of 1897., Same is to be considered for performance Guarantee.Please confirm.	As per NIT, Sec-12.0, Clause 2.6.3
3	Technical_Amendment_No_01_GT G-HRSG_Project_NFL-Nangal_17_05_2017	2 of 103	Sr. No. 5	Density/Sp Gr : row deleted NCV : 32562 BTU/SM3 NCV : 8211 Kcal/Sm3	We understand that NCV specified as 8211 Kcal/SM3 & 32562 BTU/SM3 is of fuel composition for Lean natural gas as specified in Tender PNMM/PC140/E-601/P-II/Sec. 2.0 , clause number 1.6, pg. no. 293 of 1527., Same is to be considered for performance Guarantee.Please confirm.	As per NIT, Sec-12.0, Clause 2.6.3

PART :2

Electrical Queries				
S.No.	Applicable project	NIT requirement	Bidder's clarification/query	OWNER'S / PMC Reply
1	66kV Switchyard Modification work			
a	Nangal	Bidder's understanding about the 66kV switchyard modification work is as follows. a) Two numbers of 66kV transmission lines from the new GTG plant shall be connected to the existing 66kV Auxiliary bus. b) Two numbers of transformer outgoing lines (NGE-1 & NGE-2) from the existing 66kV Main bus shall be removed and reconnected to the 66kV Auxiliary bus. c) Currently Main and auxiliary buses are connected through Isolator shall be replaced with bus couplers (Isolator-CB-Isolator) d) All bays of Switchyard (new CB's and existing CB's) shall be configured to the SCADA based Load Management System.	<u>Bidder would like to inform the major observations wrt to Switchyard modification from the site visit (Dated 8/9/10 May 2017) as follows:</u> a) There is no space available between Main and Auxiliary buses to install Bus-coupler. b) 66/11kV Transformers (NGE-1 & NGE-2) are located near 66kV Main bus, on opposite side of the 66kV Auxiliary bus.Disconnecting from Main Bus and reconnecting to Auxiliary bus is not possible since no space is available . c) Switchyard is only the source for the NFL utilities.NFL to assure the required Shutdown for modification work .	a)As specified in NIT, Bidder to note that 66KV XLPE cables (Required nos. shall be calculated by the bidder) shall be laid in overhead cable trays along with new structure from 11KV/66KV transformer to 66KV switch yard.Sufficient space is available at switchyard. b)Sufficient space is available at site Bidder may revisit the site and coordinate with NFL . c)Required shutdown shall be given by M/s NFL.



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b	Nangal	Input required for 66kV Switchyard	<p>To study the feasibility and estimate the modification works the following information is required.</p> <p>a) Bidder would like to know whether any feasibility study was done for Switchyard modification work. If done, please share the report.</p> <p>b) Bidder needs the existing configuration (SLD) of the Switchyard to study and estimate the modification works. Currently, Bidder has only new SLD (to be implemented).</p> <p>c) Please furnish the existing switchyard layout to understand about the space availability for new equipment and possibility for work.</p> <p>d) Details of existing control & protection, SCADA system details to study the feasibility of configuration with the new Load Management System.</p> <p>e) What is the space available in the existing switchyard control building for installing new control & protection panels, DB's etc.</p>	<p>a)System study for modification in switchyard and synchronisation etc as specified in NIT shall be in Bidders scope.No feasibility study was done.</p> <p>b) &c)Bidder to collect all required drawings/documents from site and coordinate with NFL.</p> <p>d)New SCADA LMS as specified in NIT shall be in bidder scope.Hookup of New LMS sytem with existing Electrical network monitoring systemshall be in bidder's scope .Bidder may collect necessary/relevant data from site</p> <p>e)All New Relay Protection n control panel/DBs associated with this project shall be installed in New GTG substation/control room .</p>
2	SCADA based Load Management System			
a	Nangal Panipat Bathinda	SCADA based Load Management System	<p>SCADA based LMS for existing facilities like AMMONIA plant and Raw Water Intake area and Water treatment plant and Township is requested in the Tender, However we can't ascertain the quantum of work with out knowing the procees details and interface required in the existing system both Hardware and Software, We request NFL to provide us a comprehensive report with process details , Drawings of the system, switchgear panels , layout and detailed BOQ etc.,in order to furnish our quotation.</p>	<p>Vendor shall vist the site for collection of all the required data/drawings for design of SCADA based Load management system as specified in NIT. However at Nangal, there is NO existing LMS. For Nangal unit, all the required hardware / software for load management for existing facilities like AMMONIA plant and Raw Water Intake area and Water treatment plant and Township shall be in bidder's scope. However in ammonia plant we have SCADA for monitoring purpose only based on IEC 60870-5-103 protocol</p>
I&C Queries				
S. No.	Ref. Clause, Pg. No.	Specification Requirement	Bidder's Clarification / Deviation	OWNER'S / PMC Reply
1	Part-II, Section 5.5, Design Philosophy-Instrumentation Page 5/125	For measurements having interlock and control, the execution shall be 2003 only through use of three transmitters upto ESD system. The control shall be median control through hardwired repeat outputs from ESD marshaling cabinets.	Bidder proposes that trip interlocks of critical plant equipment and BMS related interlocks and controls shall be executed in the ESD. Other interlocks and controls shall be executed in the plant DCS.	Bidder to comply as per NIT
2	Part-II, Section 5.5, Design Philosophy-Instrumentation Page 11/125	Electrical Supply to Solenoid Valves shall be	Bidder proposes 110V AC SOVs according to standard design practice adopted by Bidder and executed in similar projects	Bidder to comply as per NIT



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3	Part-II, Section 5.5, Design Philosophy-Instrumentation Page 22/125	CEMS - SOX - UV Fluorescent Absorption, NOx - Chemiluminescence	Bidder proposes Non-Dispersive Infra Red (NDIR) technique based analyser for SOx and NOx measurements, which is suited for the exhaust gas composition in these projects, and commonly used in CEMS applications. Bidder has experience of supplying such analysers in many similar installations.	OK,ACCEPTABLE
4	Part-II, Section 26.2, Design Philosophy-Instrumentation Page 78/125	Operator's Keyboard	According to Bidder's standard design and currently accepted industry standards, QWERTY keyboards alone shall be provided with all workstations.	Membrane Operator's Keyboard and QWERTY engineer's keyboards both shall be supplied as per NIT.
5	Part-II, Section 26.2, Design Philosophy-Instrumentation Page 65/125	For bypassing the field inputs for operational and maintenance requirements, common Key-operated hardwired enable switch located on hardwired console shall be provided. Individual bypasses shall be implemented through graphics on operator consoles. Bypassing shall be event recorded.	According to Bidder's standard design, bypass / overrides are not provided for interlocks, since it may compromise safety interlocks and logics. This requirement can be achieved by forcing I/Os from the DCS Engineering Station with event logging.	Bidder to comply as per NIT
6	Part-II, Section 26.2, Design Philosophy-Instrumentation Page 67/125	Architecture for HRSG DCS shall be Server-Based, with all nodes sitting on the main Plant communication loop/ Data-Highway. Client-Server Architecture is not acceptable. All Workstations should be directly sitting on Plant Communication Loop as independent nodes. No operating Station should be connected to Plant communication loop through a server. All workstation should be directly connected to main Plant communication loop as independent nodes.	Bidder understands that Employer requires all operator stations to connect directly to the plant communication loop as independent nodes without adopting a Server-Client based architecture. Bidder requests Employer's confirmation in this regard.	Confirmed,Server -Server architecture is only required
7	Part-II, Section 26.2, Design Philosophy-Instrumentation Page 69/125	HRSG DCS shall also incorporate independent/dedicated SER (Sequence of Event recorder) System having 1ms resolution. All related hardware shall be in the scope of Bidder. Make of SER shall be Rochester.	According to Bidder's standard design, SER shall be an integral function of plant DCS, and separate hardware is not required for achieving this function.	Bidder to comply as per NIT
8	Part-II, Section 26.2, Design Philosophy-Instrumentation Page 72/125	LVS shall be LED type (smart) with DLP based technology. Resolution of each screen - Minimum 3840 x 2160 pixels ultra high definition 4K flat smart LED TV (Sony make) having 2 Nos USB port, VGA port, HDMI, etc. and shall support an aspect ratio of 16:9. Configuration of LVS shall be Double tier with screens seamlessly combined with provision of expansion of one screen on each side.	Bidder understands that Employer requires 1 No. 85" ultra high definition 4K flat smart LED TV to be supplied as LVS. 2 Nos USB port, VGA port, HDMI, etc. and shall support an aspect ratio of 16:9. Bidder requests Employer's confirmation in this regard.	confirmed, 1 Nos. (85") LVS for GTG/HRSG 1 Nos. (65") LVS for conference room



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9	Part-II, Section 26.2, Design Philosophy-Instrumentation Page 75/125	The System architecture of DCS shall be Server based. Client-server Architecture is NOT acceptable.	Bidder understands that Employer requires all operator stations to connect directly to the plant communication loop as independent nodes without adopting a Server-Client based architecture. Bidder requests Employer's confirmation in this regard.	Confirmed,Server -Server architecture is only required
10	Part-II, Section 26.2, Design Philosophy-Instrumentation Page 88/125 Part-II, Section 26.2, Design Philosophy-Instrumentation Page 99/125	Cables shall be fire retardant (FRLS) as per standard IEC 332 Part III Cat. A. All cables shall be fire retardant (FRLS) type as per IEC- 332.	Bidder understands that Employer requires <u>Flame Retardant</u> Low Smoke (FRLS) cables to be supplied in line with IEC 332 Part III Cat. A. Bidder requests Employer's confirmation in this regard.	Confirmed
11	Part-II, Section 26.13.6, Design Philosophy-Instrumentation Page 77/125	DCS and ESD I/O cards channel density shall be as per following: - Analog Input 16 Channels - Analog Output 8 Channels - Digital Input 16 Channels - Digital Output 16 Channels	Bidder proposes the following I/O channel density, in line with DCS suppliers' standard product offering and proven practice: - Analog Input 16 (or) 32 Channels - Analog Output 8 (or) 16 Channels - Digital Input 16 (or) 32 Channels - Digital Output 16 (or) 32 Channels	Bidder's proposal is acceptable. Higher channel density modules will be accepted but channels as per NIT will be considered for use.
12	Part-II, Section 26.33, Design Philosophy-Instrumentation Page 85/125	The operator's console area and the rack area and engineering console room area shall have false flooring above 1.5 mtr from ground level for cable laying.	Based on project execution experience and standard practice, Bidder's proposal is to provide a false floor height of 600mm, which is adequate for cable laying and installation.	Bidder to comply as per NIT
13	Part-II, Part-II, Section 4.1, Page 3/16	xv.GTG Control System shall be of Micro Processor based control System (MARK VIe or any other advanced version) xvii.Gas Turbine manufacturer's standard Control and Monitoring System.	Bidder proposes OEM's standard and proven control system for the offered Gas Turbine package. The system design and configuration with triplex microprocessor-based controller has been already standardized to realize more reliable and suitable operation of the Gas Turbine package.	Bidder to comply 5.5 section(clause 25.3) as per NIT
14	Part-II, Part-II, Section 4.3, Page 12/17	Bidder shall consider New dedicated DCS of Honeywell/Yokogawa/ Emerson make for control of GTG/ HRSG.	In addition to the DCS suppliers mentioned in Tender, Bidder proposes the following DCS suppliers also for plant control system: (a) GT OEM's standard control system, which has many proven installations as the plant DCS. (b) ABB Control Systems	a)Bidder to comply 10 section(clause 4.41) as per NIT b)ABB is not acceptable.
15	Part-II, Section 5.5, Page 68/125 Part-II, Section 5.5, Page 78/125	DCS & ESD system for HRSG shall be from the same vendor. BMS Control system shall be implemented in ESD system of HRSG. The ESD shall be a system with a very high degree of reliability, SIL-3, TUV certified. The system shall be microprocessor based programmable logic control (PLC) with fault tolerant redundant processors based on TMR/QMR technology.	Bidder proposes OEM's standard and proven control system for the ESD, which is composed of quadplex microprocessor-based controller and is SIL3 certified.	a)Bidder to comply as per NIT b)Bidder to comply 10 section(vendor List) as per NIT



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PART :3

Sl.No.	Ref. Clause, Pg. No.	BIDDER'S QUERY	OWNER'S / PMC REPLY
1	Technical amendment (Addendum 01) point no 27 on page 4 (Clause 3.3) for Panipat & Bhatinda site	LP steam pressure, temperature & min. flow required at HRSG battery limit (2 m from HRSG structure at pipe rack elevation).	LP steam flow is to decided by bidder to maintain flue gas temperature < 140 °C, Other parameters are described in NIT, Clause No - 1.3 of Sec 2A/2B and Sec 2 for Nangal. Bidder may kindly refer the amendments issued after pre-bid meeting.
2		DM water for LP steam should be deaerated & chemical dosing to be done before inlet to HRSG, please clarify the scope.	Dosing and de-aeration is in bidder's scope. Kindly refer 1.5 of Sec 2A/2B of NIT
3		Please provide HP steam parameter required at HRSG battery limit.	As per NIT, Clause No- 1.3 of Sec. 2A/2B and Sec 2 for Nangal
4		Please provide the saturated steam pressure (or) temperature, enthalpy at HRSG Battery limit.	As per NIT - 1.3 of Sec. 2A/2B and Sec 2 for Nangal.
5		Please confirm minimum Stack height to be considered	As per NIT, Clause 3.7.1 of Sec. 4.3
6		Minimum temperature for BFW is revised to 45°C, while ADP temperature for fuel is ~125°C. It is not recommended to have water inlet temperature below ADP temperature.	BFW Temp., pressure and other parameters as per NIT. It may be noted that the minimum BFW temperature of 45 °C will be only during cold startup of Ammonia Plant.

PART :4

Sl.No.	BIDDER'S QUERY	OWNER'S / PMC REPLY
1	As per the bidder's request for furnishing the Single Line Diagram (SLD), PDIL/NFL's reply was "SLDs of Existing System are attached"; however, SLD of the existing system could not be traced in the pre bid reply document or PDIL's website. Therefore, we request you to kindly furnish the SLDs for the GTG & HRSG Project for NFL, Panipat and Bhatinda.	Please refer page 27 of 80 (Annexure-XII , Point no.5) and 73 of 80 ((Annexure-XVIII , Point no-1) of Pre-Bid reply uploaded on website, it is mentioned that the existing SLDs shall be collected by bidders during site visit. Same reply shall prevails for all the points related to availability of existing SLD.