

PRE-BID QUERIES (Bidder-1)						
NAME OF THE PROJECT			RWTP, RO-DMP, CPU & ZLD PLANT for Panipat Refinery Expansion Project (P25) of M/s Indian Oil Corporation Limited (IOCL), India			
Sl..No.	Bid Document Reference	Tender Notice Page No	Section or Clause Ref	Reference as per Tender	Bidder's Query	Client reply
	Technical					
1	SPECIFICATION FOR MEDIUM VOLTAGE SWITCHBOARD FIXED TYPE FOR PACKAGE EQUIPMENT Spec No.6-51-0012 Rev. 5	05 of 09	4.0 SITE CONDITIONS	Design ambient temperature of 40° C	Design ambient temperature of 40 deg C is mentioned in spec whereas 45 deg C is mentioned in data sheet. Please confirm correct Design ambient temperature	Bidder to Note that Equipment Design Temperature is 45 deg C as per Cl. 5.1 of Engg. Design Basis-Electrical (B269-999-16-50-EDB-1001). Kindly follow the same for Site Conditions and follow the tender document.
2	SPECIFICATION FOR MEDIUM VOLTAGE SWITCHBOARD FIXED TYPE FOR PACKAGE EQUIPMENT Spec No.6-51-0012 Rev. 5	05 of 09	5.0 DESIGN AND FABRICATION REQUIREMENTS	5.3 The switchgear shall be assembled out of vertical panels of uniform height not exceeding 2450 mm in a single line up.	The height of the switchgear panels shall be as per OEM standard design. Please confirm your acceptance.	Bidder to follow Tender Documents.
3	B26947516500001/Rev.B	-	6.6 KV HV PANEL-KEY SINGLE LINE DIAGRAM	Outgoing plant feeder (for owner)	Kindly provide load details of owner for our switchgear sizing calculation	Bidder to note that 'Outgoing plant feeder (for Owner)' is not required and stands 'Deleted' from the Tender scope. For Owner's other loads bidder to refer tender document/Technical Amendment
4	SPECIFICATION FOR ENERGY EFFICIENT MEDIUM VOLTAGE INDUCTION MOTORS Spec No.6-51-0064	04 of 12	1.0 - Scope	This specification covers the design, manufacture, testing, packing and supply of energy efficient-High efficiency (IE2/IE3 as specified in data sheet) three phase medium voltage squirrel cage induction motors.	Please clarify if Motor energy efficient shall be either IE2 or IE3.?	Bidder to note that Motor shall be IE3 as per cl. 4.0 (Specific Design Requirements, S. No. 24) of Engg. Design Basis-Electrical (B269-999-16-50-EDB-1001).
5	SPECIFICATION FOR ENERGY EFFICIENT MEDIUM VOLTAGE INDUCTION MOTORS Spec No.6-51-0064	04 of 12	4.2 - Frequency and Voltage Variations	The terminal voltage differing from its rated value by not more than + 6 %	We have considered +10% to -10% voltage variation as per standard practice & as given in motor data sheet. (doc.no.B269-999-16-50-DS-0502). Please confirm your acceptance.	Bidder to follow Cl. 5.6.10 of Engg. Design Basis-Electrical (B269-999-16-50-EDB-1001) for Motors.
6	SPECIFICATION FOR ENERGY EFFICIENT MEDIUM VOLTAGE INDUCTION MOTORS Spec No.6-51-0064	04 of 12	4.2 - Frequency and Voltage Variations	The frequency differing from its rated value by not more the + 3 %	We have considered +5% to -5% frequency variation as per standard engineering practice. Please confirm your acceptance.	Bidder to follow Cl. 5.6.10 of Engg. Design Basis-Electrical (B269-999-16-50-EDB-1001) for Motors.
7	SPECIFICATION FOR ENERGY EFFICIENT MEDIUM VOLTAGE INDUCTION MOTORS Spec No.6-51-0064	06 of 12	5.2 - Performance	Unless specified, the starting current (as % rated current) shall be as per IS 12615:2011, subject to IS tolerance	Please note that, the motor starting current is limited to 600% of FLC (Subject to IS tolerance) as per standard engineering practice. Please confirm your acceptance.	Noted. Bidder to follow Tender Documents.

8	SPECIFICATION FOR ENERGY EFFICIENT MEDIUM VOLTAGE INDUCTION MOTORS Spec No.6-51-0064	11 of 12	9.0 - Painting	Color shade of final paint shall be 632 of IS: 5/ RAL-7031.	Please note that, we have considered motor paint shade for RAL 7031 as per motor data sheet. (doc.no.B269-999-16-50-DS-0502). Please confirm your acceptance.	Bidder to note that colour shade of final paint shall be 632 of IS-5/ RAL-7031, & both are acceptable as per Tender Documents.
9	SPECIFICATION FOR HIGH VOLTAGE INDUCTION MOTORS Spec No.6-51-0031	05 of 17	4.2 - Frequency and Voltage variations.	The terminal voltage differing from its rated value by not more than + 6 %	We have considered +10% to -10% voltage variation as per standard practice & as given in motor data sheet. (doc.no.B269-999-16-50-DS-0451) . Please confirm your acceptance.	Bidder to follow Cl. 5.6.10 of Engg. Design Basis-Electrical (B269-999-16-50-EDB-1001) for Motors.
10	SPECIFICATION FOR HIGH VOLTAGE INDUCTION MOTORS Spec No.6-51-0031	05 of 17	4.2 - Frequency and Voltage variations.	The frequency differing from its rated value by not more the +/- 3 %	We have considered +5% to -5% frequency variation as per standard engineering practice. Please confirm your acceptance.	Bidder to follow Cl. 5.6.10 of Engg. Design Basis-Electrical (B269-999-16-50-EDB-1001) for Motors.
11	SPECIFICATION FOR HIGH VOLTAGE INDUCTION MOTORS Spec No.6-51-0031	16 of 17	12.0 - Painting	Color shade of final paint shall be 632 of IS: 5/ RAL-7035.	Please note that, we have considered motor paint shade for RAL 7031 as per motor data sheet. (doc.no.B269-999-16-50-DS-0451). Please confirm your acceptance.	Bidder to note that colour shade of final paint shall be 632 of IS-5/ RAL-7031, & both are acceptable as per Tender Documents.
12	SPECIFICATION FOR SMALL MV VARIABLE FREQUENCY DRIVE SYSTEM Spec No.6-51-0049	07 of 16	5.1.16 - Performance Requirement	Type test report for EMC compliance for VFD Panel shall be submitted by vendor.	Please note that, as per OEM recommendation Type test report for Electromagnetic Compatibility (EMC) compliance should be provided for VFD module only. Hence, Please confirm your acceptance.	Bidder to note that Type Test Reports shall be submitted by Vendor for complete VFD panel in line with the relevant IS/ IEC requirements w.r.t. EMC compliance. Bidder to follow Tender Documents.
13	SPECIFICATION FOR HV VARIABLE FREQUENCY DRIVE SYSTEM Spec No.6-51-0050	07 of 19	5.1.16 - Performance Requirement	Type test report for EMC compliance for VFD Panel shall be submitted by vendor.		
14	SPECIFICATION FOR MV VARIABLE FREQUENCY DRIVE SYSTEM Spec No. 6-51-0038	07 of 17	5.1.16 - Performance Requirement	Type test report for EMC compliance for VFD Panel shall be submitted by vendor		
15	SPECIFICATION FOR SOFT STARTERS FOR MOTORS Spec No. 6-51-0036	07 of 16	5.1.13 - Performance Requirement	All electronic devices including thyristors, transistors, diodes, IGBT, IGCT, IEGT, SGCT (as applicable) etc. shall be rated under operating conditions for approximately 200% of the maximum current carried by the device.	Please note that, as per OEM recommendation the Electronic device should be rated under operating condition for 150% of the maximum current carried by the device. Hence, please confirm your acceptance.	Bidder to follow Tender Documents.
16	SPECIFICATION FOR SOFT STARTERS FOR MOTORS Spec No. 6-51-0036	07 of 16	5.1.17 - Performance Requirement	Harmonics at the supply side of the soft starter system shall be restricted within the maximum allowable levels of current and voltage distortion as per recommendations in the latest edition of IEEE-519.	Please note that, as per OEM suggestion the Current & Voltage Harmonic distortion at supply & load side is not created by Soft Starter module. Since, this is only for switching mode operation and also limit the starting current & soft starting purpose . Moreover, the Harmonic distortion is only applicable for VFD module only. Hence, the same is not envisaged. Please confirm your acceptance.	Bidder to follow Tender Documents.
17	SPECIFICATION FOR SOFT STARTERS FOR MOTORS Spec No. 6-51-0036	08 of 16	5.3.3 - Panel Construction	The drive shall be suitably housed in sheet steel panels and shall be fabricated using Galvanised steel or any other material complying with EMC requirements.	Please note that, as per OEM recommendation, the Electromagnetic Compatibility (EMC) is only applicable for Soft Starter module only. Moreover, Panel Enclosure material is considered for sheet steel panels and shall be fabricated using Galvanised steel as per specification. Please confirm your acceptance.	Bidder to note that Type Test Reports shall be submitted by Vendor in line with the relevant IS/ IEC requirements w.r.t. EMC compliance. Bidder to follow Tender Documents.
18	SPECIFICATION FOR SOFT STARTERS FOR MOTORS Spec No. 6-51-0036	11 of 16	5.4.4 - Output filter	Soft starter output current waveform shall be inherently sinusoidal with harmonic limits as specified in this specification. Output filter shall be provided, if required.	Please note that, the Soft Starter does not produce Voltage & Current Harmonic at Source & Load side. Hence, the output filter is technically not required. Please confirm your acceptance.	Bidder to follow Tender Documents.

19	SPECIFICATION FOR SOFT STARTERS FOR MOTORS Spec No. 6-51-0036	11 of 16	5.4.5 - Bypass Feature	All necessary interlocks as required for safe and reliable operation of soft start system along with bypass feeder and output side isolator/breaker considered by Purchaser shall be provided in the soft start system.	Please note that, the isolation is being considered in the input side of individual Soft Starter with By-Pass arrangement module for maintenance & troubleshooting purpose. Hence, the output side isolator/breaker is not required. Hence, please confirm your acceptance.	Bidder to follow Tender Documents.
20	B269-999-16-50-EDB-1001 Engineering Design Basis (Electrical)	10 of 49	4.0 SPECIFIC DESIGN REQUIREMENTS	23, In all Substations/ MCC rooms, space for future extension of all GIS, HV Switchboards, PCCs, MCCs and ASBs shall be provided. Minimum space for two vertical panel extension on each side (for each Bus section) or four vertical panel extension space on one side (in exceptional cases) shall be provided	In all Substations/ MCC rooms, space for future extension of switchboards shall be provided as per clause 6.0 SUBSTATION / MCC ROOM DESIGN PHILOSOPHY. Please confirm your acceptance.	Bidder to follow Cl. 4.0 of Engg. Design Basis-Electrical (B269-999-16-50-EDB-1001) for specific design requirements. Further, EDB shall be read in conjunction with other requirements specified in 6-51-0099 and other documents attached with tender.
21	DESIGN PHILOSOPHY FOR ELECTRICAL FACILITIES Spec No. 6-51-0099 Rev. 7	25 of 32	6.0 SUBSTATION / MCC ROOM DESIGN PHILOSOPHY	6.16, In all Substations/ MCC rooms, space for future extension of switchboards shall be provided. One panel extension space on each side (for each Bus section) or two panel extension space on one side (in exceptional cases) shall be provided for all GIS, HV Switchboards, PCCs, MCCs, ASBs and LDBs. In addition, space for future extension of the substation/ MCC room building shall be considered, as specified in project design data sheet.		
22	Engineering Design Basis (Electrical) Doc No. B269-999-16-50-EDB-1001	26 of 49	5.4.4.1 Metering devices in EHV, HV and MV switchboards	8.) Digital multi-function meters shall be provided in incomers, buscoupler & outgoing breaker feeders (except motor feeders) for MV PCC with communication over RS-485 or fibre optic cable, preferably with IEC protocol. This shall be in addition to metering as part of numerical relays for energy management functions.  11) Digital multi-function meters with communication over RS-485 or fibre optic cable, preferably with IEC protocol shall be provided in incomers of UPS ACDB.	As per OEM standard, Digital multi-function meters with communication RS-485 and RJ45 Port. There is no requirement for fibre optic cable. Hence, please confirm your acceptance.	Noted. Bidder to follow Tender Documents.
23	Engineering Design Basis (Electrical) Doc No. B269-999-16-50-EDB-1001	30 of 49	5.6.2 HV SWITCHBOARD	Notes : - 5.) Double bus tie circuit breaker shall be provided in all HV Switchboards (6.6kV). Second buscoupler shall be without any kind of numerical relay and shall be provided with Electro mechanical type Trip circuit supervision relay. Status of second buscoupler shall be used in interlock of Auto changeover logic, which shall be implemented in the first buscoupler with numerical relay. There shall not be any feeder in between the both bus coupler.	The usage of Second buscoupler breaker is always (NC) Normally closed and is without numerical relay. Functionally, Single buscoupler breaker with numerical relay is generally used for FBT & auto change over effectively. Hence, we propose to follow single buscoupler circuit breaker at HV switchgear (6.6kV).  Please confirm your acceptance.	Deviations are not acceptable. Bidder to follow Tender Documents.
24	Engineering Design Basis (Electrical) Doc No. B269-999-16-50-EDB-1001	37 of 49	5.6.15 VARIABLE FREQUENCY DRIVE	2.1 MV Inverter ii) 690V for motor kW rating more than 315kW & up to 700kW	We propose the following motor voltage level for VFDs 2.1 MV Inverter ii) 415V / 690V for motor kW rating more than 315kW & up to 700kW  <u>Please confirm your acceptance</u>	Deviations are not acceptable. Bidder to follow Tender Documents.
25	Engineering Design Basis Document No. B269-999- 16-50-EDB-1001 Rev No. 0	39 of 49	5.7.2 CABLE LAYING PHILOSOPHY	-	Cable laying philosophy for cable trays shall be as per follows Top trays shall be Instrumentation / control cables Next shall be LT Power cables Lower most shall be HT power cables.	Instrumentation cables shall not be clubbed with Electrical cables. Bidder to follow Tender Documents.

26	Engineering Design Basis Document No. B269-999- 16-50-EDB-1001 Rev No. 0	39 of 49	5.7.2 CABLE LAYING PHILOSOPHY	1 Process area RCC trench, sand filled without racks 2 Offsite paved area Above Ground cable tray on sleeper 3 Offsite unpaved area Above Ground cable tray/Directly buried	1 Process Plant building inside / out door process tank within the dyke / area within the shed / are included in Process area. 2 Area leading to above cited locations (which are paved) are Offsite paved area 3 Area leading to above cited locations (which are unpaved) are Offsite unpaved area Please confirm your acceptance of our understanding of paved area and other areas.	Regarding paved and unpaved areas, RCC Pavement shall be provided for all area within battery limit.Refer Note No 7 of scope Drawing B269-475-81-41-14561 Rev.B and Drawing B269-475-81-41-14562 Rev.B. For cable laying philosophy in paved and unpaved areas, Bidder to follow tender/Technical Amendment.
27	Engineering Design Basis (Electrical) Document No. B269-999-16-50-EDB-1001 Rev No. 0	39 of 49	5.7.1 CABLE DETAILS	5.7.1 CABLE DETAILS NOTES 4) MV Busduct shall be Phase insulated Sandwich type.	MV Busduct shall be Phase insulated Sandwich type / Conventional type Please confirm your acceptance	Bidder to note that as per cl. 3.4.3 of Job Specification-Electrical (B269-475-16-50-SP-8701) attached with Tender, Note-4 of EDB Doc. No. B269-999-16-50-EDB-1001 (page 39 of 49) stands deleted and is replaced by following:  "Non segregated phase air insulated type MV bus duct shall be provided in place of sandwich type busduct."  Also, Please read the same as "Non segregated phase air insulated type" in MV Busduct Datasheet Doc. No. B269-999-16-50-DS-0103 attached with Tender.
28	JOB SPECIFICATION (Electrical) Doc. No. : B269-475-16-50-SP-8701	21 of 49	3.7 MV SWITCHBOARD	3.7.5 Limiting maximum rating of PMCC/EPMCC shall be 4000A and fault level limited to 65kA for 1 sec.	The fault level at PMCC/EPMCC can be sized within the limit of 50kA by providing the transformer's Impedance as 10%. Hence, please confirm your acceptance	Deviation is not acceptable. Bidder to follow cl. 2.2 "Fault Level Selection" of Job Specification-Electrical (B269-475-16-50-SP-8701) attached with Tender for HV & MV system.