"Gardabani 3" 272 MW Combined Cycle Thermal Power Plant				
#	RFP document reference & section number	Original wording or issue for which clarification is sought	Bidder's clarification request	Company response to Bidder's clarification request
1	Section 4 Terms of Reference 2.2 ESTIMATED PERFORMANCE	**Performance of GT** Gross Electrical Output at Generator Terminal of GTs [kW] 175 200 **Performance of ST** Gross Electrical Output at Generator terminal of ST [kW] 100 900 **Performance of Combined Cycle** Gross Power [kW] 276 100 Auxiliary Consumption not more than [kW] 4 100 Net Power [kW] 272 000	Consider the site condition and configuration of power block, gross electrical output will be less than Employer's Requirements. It has been checked with GE, the gross electrical output of combined cycle is hoped to be close to 272 MW. As for Auxiliary consumption 4100kW of Employer's Requirements, please specify which auxiliaries are considered in operaiton, as per our calculation, the consumption will be higher if take natural gas compressor / transformer loss etc. into account.	See updated ToR
2	Section 4 Terms of Reference 3. DESIGN CRITERIA	The following shall be used as the basis for plant design: *Measurement* / *Unit* / *Value* Site Altitude m 292-294 Site pressure mbar 1013 Ambient dry-bulb temperature °C 15 Ambient relative humidity % 68 Grid Voltage kV 500 Grid Frequency Hz 50	Design conditions (page 20) show site altitude as 292-294 m and at the same time site pressure 1013 mbar. However 1013 mbar is in essence 0 m altitude. So there is inconformity.	See updated ToR
3	Section 4 Terms of Reference 3. DESIGN CRITERIA	The Contractor shall undertake any analysis required to determine composition and LHV of fuel gas to ensure proper design of the plant.;	Gas composition is missing. Without it guaranteed performances can't be calculated. It is assumed that G2 contract gas composition can be used but there is a need for official confirmation.	It is EPC Contractors Responsibility
4	Section 4 Terms of Reference 4. SPLIT OF OBLIGATIONS	Boiler Feed Water Pump Building,Fire Pump Building	Please specify the Boiler Feed Water Pump Building and Fire Pump Building , is it only canopy or an enclosed building ?	Fire pump building should be enclosed, with internal heating to avoide freezing of pumps and piping.Boiler feed pump building should protect pumps and assosiated equipment from presipitation.
5	Section 4 Terms of Reference 4. SPLIT OF OBLIGATIONS	HRSG EXHAUST SYSTEM-Main stack Design shall be in compliance with environmental studies.	Please to provide the environmental studies for the contractor to determine the stack height.	See ToR Section 3, Design Criteria, the contractor is obliged to prepare the environmental studies (incl. emissions) and based on these studies, the contractor is obliged to determine not only the heights, but the whole design of the stack

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6	Section 5 Annex 1	In the Annex 1_clause1.16., It is stated that Guaranteed Performance Parameters" means the guaranteed performance parameters set forth in Section 2.2 of the Employer's Requirements that are required to be demonstrated during the Performance Test and Reliability Run and constitute pre-conditions for the Taking Over. However, in the Section 3 "TESTING", It is shown that the Performance Test shall be conducted in accordance with ASME PTC 46 to demonstrate that the facility can meet the Guaranteed Gross Electrical Output and the Guaranteed Emissions Limits.	Please clarify for net output and gross output ,which one will be as the guaranteed performance value for performance test.	See updated ToR
7	Section 4 Terms of Reference 2.1 Project Description	Steam Turbine: Condensing, Double Flow	We consider the "double flow" means double inlet steam (high pressure & low pressure steam), please confirm.	See updated ToR
8	1.Background-Second-last paragraph	"The gas temperature in the territory of Gardabani varies from 0 °C to +30 °C and the gas pressure ranges from 9 bar (a) to 18.5 bar (a)."	As GII contractor we reckon that the mainline pressure stays at around 23barg, please let us know if there is any reducing or regulating valves in GPRMS(client scope) which will influence the pressure of natural gas at boundary of the plant. As the GPRMS is in client scope, it will be very helpful if the client can provide the configuration of the GPRMS for better understanding.	In future outlet gas pressure From GPRMS could be 12 to 54 bar and pressure can vary. Thus the EPC Contractor shall ensure the installation of all necessary equipment on site of the power plant. EPC Contractor should envisage receive of gas bypassing the compressor and received gas should be filtered, heated, regulated, measured and etc.. All measures should be done to achive gas quality apropriate for turbine consumption
9	3.design criteria	"ESD Valve shall be installed by contractor at outlet of GPRMS and shall be integrated in DCS system"	Contractor would like to confirm where should this valve be placed at outlet of GPRMS. As the gas pipe usually will go to underground within the GPRMS fence(client scope), and will only go back to upground again after entering the RMS fence. We reckon there won't be suitable place to amount such ESD valve as described as "at outlet of GPRMS". Contractor suggest to place it in GPRM's fence in client scope or in RMS's fence, contractor scope.	Two ESD valves are planned to be installed. One at GPRMS outlet (with possiblility to install inside the fence) and second inside the plant territory.
10	4. SPLIT OF OBLIGATIONS	Remarks for Gas Regulatory Station (RMS): "Inside Plant. Shall have ability to work without regulation"	Please be more explicit about the statement " should have ability to work without regulation". The regulating valves of RMS should be always in operation in our understanding, please be more specific about why and when the RMS should work without regulation.	The EPC Contractor shall ensure the installation of all necessary equipment on site of the power plant and envisage receiving of gas bypassing the compressor

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11	SECTION 4. TERMS OF REFERENCE 3. DESIGN CRITERIA- 500 KV SWITCHYARD & OHL SECTION 4. TERMS OF REFERENCE 4. SPLIT OF OBLIGATIONS- 6.3HV OHL BETWEEN GRID AND CCPP	"500 kV Switchyard needs to be installed which shall be connected to the Georgian State Electro System 500 kV switchyard (GSE Switchyard) via Over Head Lines or Underground lines (In case of Underground line construction is chosen…" 6 | SCOPE OF SUPPLY – ELECTRICAL 6.1 | TRANSMISSION LINE (OHL) | √ | In case of Underground line construction is chosen, technical specifications and superiority of the selected option should be agreed with GSE by EPC Contractor	1) According these items, the 500kV OHL between grid and ccpp G3 is in the scope of contractor. Owner please kindly informs the 500kV grid substation (GSE side) location or coordinates. 2) According to the available information of this project by now, in fact, the route of this 500kV OHL cannot be finalized now. Can the contractor quote this part as an option? 3) The owner please confirms that any work related to land acquisition is not in the scope of the contractor and should be completed by the owner.	1) See updated ToR 2)N/A 3)Work related to land acquisition is in scope of Employer
12	ToR Annex I Specification of Requirement 2. and its split of obligations	"A designated space to be allocated in S/S Gardabani-500 to set up a 500-kW line bay with all the necessary modern equipment and devices"	Owner please confirms this new line bay is not in the scope of the Contractor's offer.	As indicated in split of obigations, this issue is in JSC "Georgian state Electrosystem's" Scope
13	SECTION 4. TERMS OF REFERENCE 2.2. ESTIMATED PERFORMANCE	2.2 ESTIMATED PERFORMANCE *Measurement* — *Unit* — *Value* **Performance of GT** Gross Electrical Output at Generator Terminal of GTs [kW] 175 200 **Performance of ST** Gross Electrical Output at Generator terminal of ST [kW] 100 900 **Performance of Combined Cycle** Gross Power [kW] 276 100 Auxiliary Consumption not more than [kW] 4 100 Net Power [kW] 272 000	1. Here mentioned 'Auxiliary Consumption not more than 4100kW….'This requirement can't be guarantee according the actual requirement, owner please kindly clarifies.	If Auxiliary consumption will increase, the net power output will decrease accordingly. However Efficiency should not go beyond the limits already set by the updated ToR
14	SECTION 4. TERMS OF REFERENCE 3. DESIGN CRITERIA- CODES AND STANDARDS	"The power plant shall be built to USA and EU codes and standards…"	IEC standard shall be permitted.	IEC requirements is acceptable, however it should not violate USA and EU codes and standards.
15	SECTION 4. TERMS OF REFERENCE 3. DESIGN CRITERIA- PLANT CABLING	"XLPE insulated fire resistant, copper conductor, Medium Voltage cables shall be utilized for the MV cable systems..."	According the practice and standard, this 'fire resistant' requirement is not used normally, owner please confirm here requirement is 'flame retardant' rather than 'fire resistant'.	It should be fire resistant

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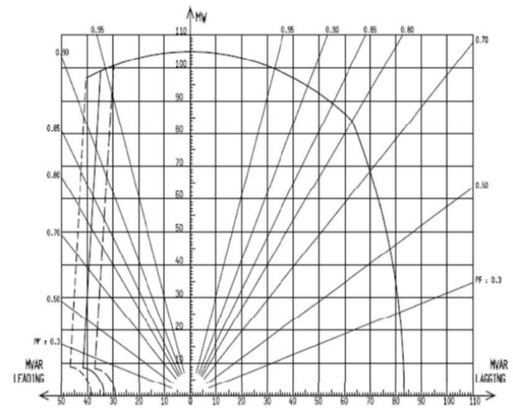
16	SECTION 4. TERMS OF REFERENCE 3. DESIGN CRITERIA- PLANT CABLING	"Cables shall be installed in duct banks in the outdoor areas..."	Due to that long duct bank is difficult for cable installation and maintenance and inspection, owner please confirm that the duct bank is not the only way for outdoor cable installation, and the combined installation method of 'cable tray+cable trench+direct buried + ductbank' shall be permitted.	N/A
17	SECTION 4. TERMS OF REFERENCE 4. SPLIT OF OBLIGATIONS 2.2		Here mentioned 'Demolition and/or Relocation of Existing above and Underground Facilities is Contractor's scope'. Owner please kindly informs the details of existing facilities which need demolition and relocation.	The above-ground buildings does not appear on site (see the topographic plan), information regarding underground structures is not available.
18	SECTION 4. TERMS OF REFERENCE 4. SPLIT OF OBLIGATIONS /5 STEAM TURBINE PACKAGE 5.3GENERATOR & AUXILIARIES-- Generator circuit breaker		This item shall be deleted. The Steam turbine generator will be without generator circuit breaker. Owner please confirms.	Circuit breakers should be installed both sides of Step up transformers
19	SECTION 4. TERMS OF REFERENCE 4. SPLIT OF OBLIGATIONS /7 INSTRUMENTATION & CONTROL SYSTEM / 7.1 DCS		This item includes 'Relaying/metering/protection, RTU/SCADA system'. Owner please confirms that this requirement has been included in the electrical scope and It does not need to be integrated into DCS system. Here is a repeated clerical error and can be deleted.	For releying Protection HMI should be envisiged.DSC should include mettering and RTU systems
20	ToR Annex I Specification of Requirement split of obligations	20. 'The PP must be capable of: b. consuming reactive power'.	Owner please kindly informs the capacity of consuming reactive power is how much? Also, please confirms this requirement is aimed at the leading PF operation of generator, and don't need install special reactor device.	The units of the power plant should have capability both for reactive power generation and consumption. For the illustration, PQ characteristic of 84 MW unit (attached), for your units the characteristic may be obtained proportionally. No installation of the special reactor device is needed, 

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21	ToR Annex I Specification of Requirement	24. 'The PP must be capable of operating to an allocated load in an autonomous mode. When the PP operates in an autonomous mode, the generator speed control system must also be capable of operating within the frequency range of	The bidder thinks that the generator cannot be operated at such low or high frequency. Please clarify what the real meaning of this place is.	Frequency adjustments are not considered, it is an island(autonomous) mode where it stays connected to the grid and is used for the grid support
22	ToR Annex I Specification of Requirement	Note 1 "EPC contractor is obliged to submit completed technical project within 3 (three) months after the signing of the contract to GSE…"	Owner please clarify when you sign the contract with GSE.	Sign date of EPC contract and GSE contract will be the same.
23	SECTION 4. TERMS OF REFERENCE 3. DESIGN CRITERIA- 500 kV SWITCHYARD UGL & OHL ToR_Annex I Specification of Requirement 7.	"The 500 kV Switchyard shall be equipped with SF6 circuit breakers, CTs, VTs, Metering units, Lightning arrester, wave trap and other required components for measurement and recording…" "Protection Set I ・Differential protection (with optical communication);" "For reliability purposes, a circular (using two cables) optic-fiber communication system must be set up between the Gardabani CCTPP-3 and S/S Gardabani-500 control buildings…" 7. The 500-kW line bay of S/S Gardabani-500 to be equipped with the digital protection, control and automation relays integrated into the digital protection and control relays present in S/SGardabani-500 36. For reliability purposes, a circular (using two cables) optic-fiber communication system must be set up between the Gardabani CCTPP-3 and S/S Gardabani-500 control buildings under the following terms and conditions:	We understood that the data exchange (protection data, dispatching data, and telephone) between the Gardabani CCTPP-3 and S/S Gardabani-500 is through optic-fiber cables (two cables) and not through the Power Line Carry Communication (wave trap, Power Line Carrier, Coupling capacitor, High frequency coaxial cable), please clarify? If the Power Line Carry Communication is need, for the coupled mode, phase-to-earth coupled or phase-to-phase coupled is used, please clarify?	We clarify, that data exchange (protection data, dispatching data, and telephone) between the Gardabani CCTPP-3 and S/S Gardabani-500 is through optic-fiber cable. For more details check ToR_Annex I clause 37.
24	ToR_Annex I Specification of Requirement	10. The Applicant to set up, for each Gardabani Thermal Plant-3 and the 500-kV power transmission line, a synchronized phasor measurement system (the technical details of which must be agreed at the design phase with GSE), and provide for the following: "The current and voltage circuits of any PMU(s) used in the synchronized phasor measurement system must be connected to the protection precision class coils of the current and voltage transformers;"	The current and voltage transformer coils to be used for PMUs can be shared with protection relays or shall be dedicated coils, please clarify?	Yes, it can be shared with the protection relays

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25	ToR_Annex I Specification of Requirement	12. In Gardabani Thermal Plant-3, GSE will ensure the arrangement of Emergency Control Automatics (ECA), for which purpose the User shall ensure the following: "Respective cables to be connected to the protection precision class coils of the current and voltage transformers connected to the generator stator circuit…"	The current and voltage transformer coils to be used for ECA can be shared with protection relays or shall be dedicated coils, please clarify?	Yes, it can be shared with the protection relays
26	ToR_Annex I Specification of Requirement	38. The Joint Box, ODF, Pigtails, optic-fiber connectors, the ground dielectric optic-fiber cable the OPGW optic-fiber cable shall preferably be made by the same manufacturer;	We understood that the Joint Box, ODF, Pigtails, optic-fiber connectors, the ground dielectric optic-fiber cable within the S/S Gardabani-500 is also in the scope of contractor, please confirm.	Yes, this is contractors responsibility
27	Anex II	Main warehouse, Chemicals Warehouse, Shelter warehouse, Workshop :The structure must be stainless steel factory-made sandwich panels	Please confirm if the color steel sandwich panel accepted as used in G2.	It should be Stainless steel
28	Anex II	Stainless steel shelves in six rows along the length of the warehouse	Stainless steel shelves or steel shelves? Please confirm.	Should be installed Stainless steel shelves
29	3 DESIGN CRITERIA FIRE DETECTION & ALARM SYSTEMS	A fire detection & alarm system shall be provided to all areas within the Plant and Site. The system shall include: a main fire control panel located in the central control room that monitors the status of various detectors and pull boxes and drives sound alarm equipment in case of fire condition;	Please confirm that except the main FAP in the central control room, whether any other unit also needs FAP.	FAP systems in addition to central control room, should be located in WTP (Water treatment plant) control room and inside steam turbine building. The Gas turbine FAP system has to be integrated in plant's main fire system and all together included in Building management system, which shall enshure fast and exact identification of system failure.
30	3 DESIGN CRITERIA BOUNDARY WALL/FENCE/GATES	Security System (CCTV; Infrared indicators & etc.) shall be installed by the contractor.	Please confirm that whether Infrared Indicators are referring to Infrared Intrusion detectors along the Perimeter. And whether CCTV cameras will be set along the Perimeter.	Infrared Intrusion detectors and CCTV cameras along the Perimeter should be installed
31	4 SPLIT OF OBLIGATIONS	6.18 ALARM, ACCESS CONTROL, PUBLIC ADDRESS, CCTV AND SECURITY SYSTEMS	For CCTV System, where do you prefer to set cameras. Which equipments and locations are the monitor targets for cameras.	On walls and entrances of facilities,indoor of facilities (in corridors),indoor of plant equpement(if any) along the fence,near the GATE and etc.
32	4 SPLIT OF OBLIGATIONS	6.18 ALARM, ACCESS CONTROL, PUBLIC ADDRESS, CCTV AND SECURITY SYSTEMS	For Access Control System, which locations need to install Access Control System.	in entrances of Administrative and Control buildings, also at gates and entrances of plant
33	4 SPLIT OF OBLIGATIONS	6.18 ALARM, ACCESS CONTROL, PUBLIC ADDRESS, CCTV AND SECURITY SYSTEMS	Please confirm that whether Alarm System is referring to Fire Alarm System.	Fire Alarm System and any emergency situation siren devices
34	4 SPLIT OF OBLIGATIONS	6.18 ALARM, ACCESS CONTROL, PUBLIC ADDRESS, CCTV AND SECURITY SYSTEMS	Please confirm that whether Security System is referring to CCTV and Infrared Intrusion detection for Perimeter.	Yes Security System is referring to CCTV and Infrared Intrusion detection for Perimeter and also for Access Control
35	section 4 terms of reference, 4 split of obligations	1.6 construction, erection and pre-commissioing, construction potable water	the potable water tie-in point wasn't mentioned in the RFP,please clarify the exact tie-in point.	Coordinates are given in the ToR, Section 3 **Potable Water System.**

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36	section 4 terms of reference, 4 split of obligations	1.6 construction, erection and pre-commissioing, construction power	the power tie-in point wasn't mentioned in the RFP,please clarify the tie-in point, the temporary transformer wasn't mentioned in RFP, please clarify who will prepare the temporary transformer	The tie-in point location and other requested information depends on the power supplier, so this issue should be determined by the contractor.
37	section 4 terms of reference, 4 split of obligations	1.6 construction, erection and pre-commissioing, construction water	the construction water tie-in point wasn't mentioned in the RFP,please clarify the exact tie-in point.	The tie-in point location and other requested information depends on the construction water supplier, so this issue should be determined by the
38	Section 4 SPLIT OFOBLIGATIONS, No. 3 GAS TURBINE & GENERATOR, No. 5.4 CONTROL AND INSTRUMENTATION		Please specify configuration of remote operator workstation of GT/GTG in Electrical and Control Building: ONE for each GT/GTG (totally TWO operator workstations), or ONE for the two GT/GTGs (totally ONE operator workstation).	Two remote operator WS should be provided in Electrical and Control Building Control room for operators and one WS in Engineering Room. All WS HMI should be configured to show both GT/GTG and STG in case if STG is same manufacturer with MARK VI control system. Each WS should have video card capable to connect two monitors. OPC connection to DCS should be redundant on GT side (from different network switches).
39	Section 4 SPLIT OFOBLIGATIONS, No. 5 STEAM TURBINE PACKAGE, No. 5.4 CONTROL AND INSTRUMENTATION	Controlled by DCS	As per manufactures' configuration, the ST/STG will be controlled and monitored by its dedicated control system, not plant DCS. Access from DCS will be provided for monitoring important status via soft link and in addition hardwired interface for critical control and protection signals. Please confirm.	Acceptable. ST/STG HMI all corresponding screens should be prepared in DCS for monitoring of ST/STG process values.
40	Section 4 SPLIT OFOBLIGATIONS, No. 7 INSTRUMENTATION & CONTROL SYSTEM, No. 7.1 DCS	mimic panel	Plant information will be monitored on DCS HMI and LVS, mimic panel is unnecessary and rarely used, so bidder suggests not providing mimic panel. Please confirm or specify detailed requirement.	Mimic panels are excluded from scope (see updated ToR).
41	Section 4 SPLIT OFOBLIGATIONS, No. 7 INSTRUMENTATION & CONTROL SYSTEM, No. 7.1 DCS	Large screen display	Please specify requirement of large screen display: screen size, nos of screens... etc.	See updated ToR
42	Section 4 SPLIT OFOBLIGATIONS, No. 7 INSTRUMENTATION & CONTROL SYSTEM, No. 7.3 PLC	Auxiliary system	PLC will be provided for water treatment plant. Please confirm if controller and DCS communication redundancy are required for this PLC.	WTP control shall be accomplished in DCS dedicated controller via remote I/O cabinet. WTP vendor documentation should contain all applied logics in forms of Function Block Diagrams, I/O lists etc for future upgrade of the system.
43	General	Date Extension	Please extent the bid submission date by 8 (eight) weeks	N/A
44	RFQ ToR Annex IV ToR Annex IV	the Topography is PDF format	please provdide the Autocad Format file of the Topography, so it would be more convenient to design the layout.	You can download .dwg file from this link https://nextcloud.gogc.ge/s/PErp2eTpRqJxgMX

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45	RFQ	The 500 kV switchyard will be connected to the existing 500 kV switchyard through aerial transmission lines which shall be installed by the Contractor	please provide the location of the existing 500kv switchyard which the CCPP swithyard will be connected to, so Contractor could estimate the cost.	Coordinates are given in the updated ToR, Section 3 500 KV SWITCHYARD UGL & OHL
46	RFQ SECTION 4. TERMS OF REFERENCE 2.2 ESTIMATED PERFORMANCE,	Auxiliary Consumption not more than 4100kW	based on our experience, the Auxiliary Consumption will be more than 4100kw, because a gas booster is needed to increase the gas pressure in the RMS, whose electricity consumption shall be considered. please clarify that if the auxiliary consumption could be more than 4100kW, as if the contractor to guarantee the net output to be 272MW under ISO condition.	See updated ToR
47	General	Date Extension	bidding deadline comes to 25/09, that means participant have a few weeks to prepare the documents, which is not sufficient to do a preparation of bidding documents. could we ask for extension and How to extend the deadline date for bidding?	N/A
48	General		due to the virus restriction and flight limitation, as a developper, we could not arrange the site survey at this moment, that means that we could not prepare a precise civil price based on the tender documents. how to solve this kind of problem?	GOGC can assist obtaining needed permission to enter Georgia During restrictions coused by pandemic.
49	Section 4 Terms of Reference Plant Major Equipment	Gas Turbine Manufacturer	according to the brand list in tender document, the gas turbine is appointed as the brand of 'General electric', could the participant quote for other brands of gas turbine like Ansaldo or MITSUBISHI	N/A