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**REQUEST FOR PROPOSALS**  
**RFP# CCPP272-02**



**საქართველოს ნავთობისა და გაზის კორპორაცია**  
**GEORGIAN OIL & GAS CORPORATION**

**Consultancy Services for**  
**Gardabani III 272 MW Combined Cycle Power Plant Project**

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## SECTION 1. LETTER OF INVITATION

December 31, 2020

1. Georgian Oil and Gas Corporation JSC (GOGC) invites proposals to select a CONSULTANT for provision of CONSULTANCY SERVICES for Gardabani III 272 MW Combined Cycle Power Plant Project.
2. More details on the Project is provided in the CONTRACT that is included in Section 4 of this Request for Proposals (RFP).
3. The rules and procedures for this selection are set out in Section 2 of the RFP -INSTRUCTIONS.
4. This RFP is open to eligible companies only. A firm will be selected under the procedures described in this RFP. Firms are advised to review these instructions carefully.
5. The RFP DOCUMENTATION includes the following documents:  
Section 1 - LETTER OF INVITATION;  
Section 2 - INSTRUCTIONS;  
Section 3 - PROPOSAL – FORM;  
Section 4 - CONTRACT.  
The RFP DOCUMENTATION can be downloaded from GOGC website:  
<https://www.gogc.ge/en/tenders>. RFP DOCUMENTATION will not be issued in person or sent by post. PARTICIPANTS shall not have to pay cost of RFP DOCUMENTATION.
6. PROPOSALS must be submitted in electronic form only, **between February 22, 2021 and February 26, 2021 18:00** (local time) at the following email address: [Gardabani3OE@gogc.ge](mailto:Gardabani3OE@gogc.ge). During this period the access to the e-mail address will be restricted and the submitted PROPOSALS shall only be available to the EVALUATION PANEL after defined deadline is expired.

## SECTION 2. INSTRUCTIONS

### Definitions

Unless otherwise provided in this Request for Proposals (RFP), capitalized terms/words shall have the following meanings:

- (a) “CONSULTANT” means any entity that may provide CONSULTANCY SERVICES under the CONTRACT for which this RFP is issued.
- (b) “COMPANY” or “PARTICIPANT” means any private or public entity, which responds to this Request for Proposal (RFP) and submits a formal PROPOSAL and which may or may not be selected to participate in the procurement.
- (c) “RFP” means this Request for Proposal prepared for the selection of the CONSULTANT.
- (d) “RFP DOCUMENTATION” means the package of the following documents: Section 1 - LETTER OF INVITATION; Section 2 - INSTRUCTIONS; Section 3 - PROPOSAL – FORM; Section 4 - CONTRACT.
- (e) “LOI” (Section 1 of this RFP) means the Letter of Invitation from GOGC addressed to companies for submitting PROPOSALS.
- (f) “INSTRUCTIONS” (Section 2 of this RFP) means this document which provides companies with information needed to prepare their PROPOSAL.
- (g) “PROPOSAL” or “BID” means the PROPOSAL (with all requested attachments) submitted by the COMPANIES.
- (h) “DAY” means calendar day.

Capitalized terms/words, which are not defined above, shall have the meanings as stipulated in the CONTRACT.

The submission of a PROPOSAL in response to this Request for Proposals indicates acceptance of the defined terminology.

### 1. Introduction

1.1 GOGC will select a CONSULTANT from the eligible COMPANIES who have submitted PROPOSALS for provision of CONSULTANCY SERVICES. The selection will be in accordance with the selection rules described in this RFP.



- 1.2 Eligible COMPANIES are invited to submit a PROPOSAL as specified in this RFP for the provision of CONSULTANCY SERVICES for Gardabani III 272 MW Combined Cycle Power Plant Project. The PROPOSAL will be the basis for contract negotiations and ultimately for a signed CONTRACT with the selected CONSULTANT.
- 1.3 PARTICIPANTS shall bear all costs associated with the preparation and submission of their PROPOSALS and CONTRACT negotiations. GOGC is not bound to accept any PROPOSAL, and reserves the right to annul the selection process at any time prior the CONTRACT award, without thereby incurring any liability to any COMPANY.
- 1.4 PARTICIPANTS' PROPOSALS shall remain valid for 120 days after the submission deadline (PROPOSALS shall be valid till May 29, 2021). GOGC will make its best effort to complete contract negotiations within this period. However, should the need arise, GOGC may request that PARTICIPANTS extend the validity of their PROPOSALS. PARTICIPANTS are not obligated to extend the validity of their PROPOSALS.

#### **1.1 Conflict of Interest**

GOGC requires that PARTICIPANTS provide professional, objective, and impartial advice and at all times hold the GOGC's interests paramount, strictly avoid conflicts with other assignments or their own corporate interests. Without limitation on the generality of the foregoing, PARTICIPANTS, and any of their affiliates, shall be considered to have a conflict of interest and shall not be engaged under any of the circumstances set forth below:

##### **1.1.1 Conflicting Assignments**

PARTICIPANTS (including its PERSONNEL and SUBCONTRACTORS) that has a business or family relationship with: a) A member of GOGC's staff who is directly or indirectly involved in any part of (i) the preparation of the RFP DOCUMENTATION, (ii) the selection process for such assignment, or (iii) supervision of the CONTRACT and/or EPC CONTRACT; and/or b) The CONTRACTOR (including its parent company or any of CONTRACTOR's affiliates) and its/their staff who is directly or indirectly involved in any part of the execution of the EPC

CONTRACT may not be awarded a CONTRACT, unless the conflict stemming from this relationship has been resolved in a manner acceptable to GOGC throughout the selection process and the execution of the CONTRACT.

#### 1.1.2 Conflicting Relationships

PARTICIPANTS have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of GOGC, or that may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the PARTICIPANT or the termination of its CONTRACT.

#### 1.1.3 GOGC Employees

No current employees of GOGC and/or CONTRACTOR shall work as COMPANY's consultants. Recruiting former GOGC employees is acceptable provided no conflict of interest exists.

### 1.2 Fraud and Corruption

PARTICIPANTS shall adhere to the highest ethical standard, both during the selection process and throughout the execution of a CONTRACT. In pursuance of this requirement, GOGC will reject a PROPOSAL for award if it determines that the PARTICIPANT recommended for award has, directly or through an agent, engaged in any activities prohibited under Georgian Legislation.

### 1.3 Eligibility

1.3.1 Neither PARTICIPANTS, nor their SUBCONTRACTORS or associates may be a person or entity that has been blacklisted from participation in State procurements according to the Law of Georgia on State Procurement;

1.3.2 A PARTICIPANT shall not be:

- (i) listed on any Sanctions List;
- (ii) located or organized in any country or territory subject to country or territory-wide Sanctions;
- (iii) a person with whom GOGC is prohibited from engaging with by reason of any Sanctions; or
- (iv) otherwise a subject of Sanctions.

For the purpose of this clause:

“Sanctions” means any economic or financial sanctions laws, regulations or trade embargoes or similar restrictive

measures imposed, administered or enforced from time to time by any Sanctioning Authority.

“Sanctions List” means any list of persons or entities being the subject of any Sanctions published by any Sanctioning Authority from time to time.

"Sanctioning Authority" means the Georgian parliament or Government, the US government or any US agency (including the Office of Foreign Assets Control of the United States Department of the Treasury (or any successor thereto) "OFAC", the US State Department, the US Department of Commerce or the US Department of the Treasury), the Security Council of the United Nations, UK or the European Union.

1.3.3 In case a PARTICIPANT intends to SUBCONTRACT other firm(s) and/or individual expert(s), such other firm(s) and/or individual expert(s) shall be subject to the eligibility criteria set forth in this RFP.

1.3.4 PARTICIPANT submitting his PROPOSAL shall not be under liquidation or similar proceedings.

**1.4 Only One Proposal**

PARTICIPANTS may only submit one PROPOSAL. If a PARTICIPANT submits or participates in more than one PROPOSAL, such PROPOSALS shall be disqualified. However, the forgoing does not limit the PARTICIPATION of same SUBCONTRACTOR, including individual experts, in more than one PROPOSAL.

**2. Clarification and Amendment of RFP Documentation**

2.1 PARTICIPANTS may request a clarification of any of the RFP documents at any time, but no later than 5 DAYS before the starting date of submission of the PROPOSALS. Any request for clarification must be sent in writing by electronic mail to GOGC at the following email address: [gardabani3OE@gogc.ge](mailto:gardabani3OE@gogc.ge).

2.2 GOGC will respond to such requests within 5 Days by issuing a clarification circular on the GOGC’s website defined in paragraph 5 of the LOI. Should GOGC deem it necessary to amend the RFP as a result of a clarification, it shall do so in accordance with the procedure described below.

2.3 At any time before the deadline for the submission of PROPOSALS, GOGC may, for any reason, whether at its own initiative or in response to a clarification requested by a COMPANY, amend the RFP. Any amendment shall be issued in writing through addenda. Addenda shall be issued on the GOGC's website defined in paragraph 5 of the LOI and it will be binding to all COMPANIES. GOGC may at its discretion extend the deadline for the submission of the PROPOSALS.

**3. Preparation of Proposals**

3.1 Each PROPOSAL, as well as, all related correspondence exchanged by the COMPANIES and GOGC shall be written in English.

**Economic and Financial Capacity**

3.2 The CONSULTANT's financial and economic capability to mobilize and provide the CONSULTANCY SERVICES is imperative. In its PROPOSAL the COMPANY is required to provide: a) Audited Financial Statements for the year ended 2018 and 2019 prepared in compliance with IFRS (International Financial Reporting Standards) or GAAP (Generally accepted accounting principles); and b) Interim and/or unaudited Financial Statement for the year ended 2020 prepared in compliance with IFRS or GAAP. In addition, the COMPANY is required to submit forecasted financial statements for the year 2021. GOGC reserves the right to request additional information about the economic and financial capacity of the COMPANY.

3.3 PROPOSALS submitted by a Consortium shall NOT be accepted.

3.4 A COMPANY that fails to demonstrate through its financial records that it has the economic and financial ability to provide the required SERVICE as described in the CONTRACT shall be disqualified. In this circumstance its PROPOSAL will not be evaluated further.

3.5 In preparing their PROPOSAL COMPANIES are expected to examine in detail the documents constituting the RFP. Material deficiencies in providing the information requested may result in rejection of a PROPOSAL.

### 3.5.1 Competence of COMPANY

The PROPOSAL shall include:

- (a) A brief description of the COMPANY's organization.
- (b) Documents confirming the experience of a COMPANY (only projects completed from the year of 2010 are accepted). COMPANY shall have experience and proven records of providing Engineering and Project Management Consultant / Owner's Engineer Services for at least 2 (two) natural gas-fired combined cycle power plants with minimum 150 MW installed capacity. For each project, the COMPANY shall submit the contract(s) and document(s) of acceptance of performance of the contract (contract and/or the acceptance documents of the contract performance shall include the scope and list of stages of carried out services). If these requirements are not envisaged in any of the contract and/or its acceptance certificate submitted by the COMPANY, then the COMPANY is obliged to submit additional clarification from the organization purchasing/ordering the Services/Works with the full description of performed Services/Works. Documents shall be provided only for completed projects and only for those assignments for which the COMPANY was legally contracted by its client as a single contractor or as the major firm within a Consortium or other association. COMPANY shall be prepared to substantiate the claimed experience if so requested by GOGC.
- (c) The information/documentation on proposed key personnel and their qualifications. COMPANY shall allocate sufficient and qualified personnel required for the provision of CONSULTANCY SERVICES with the minimum experience requirements as defined in Clause 6 of EXHIBIT A - TERMS OF REFERENCE (TOR) of the CONTRACT. COMPANY shall submit requested information on proposed key personnel in a form defined under EXHIBIT E - CONSULTANT PERSONNEL of the

CONTRACT, as well as, with relevant CVs attached. It is mandatory to submit information/documentation for all key personnel defined by the Clause 6 of EXHIBIT A - TERMS OF REFERENCE (TOR) of the CONTRACT.

(d) Information on SUBCONTRACTORS and their responsibilities within the scope of CONSULTANCY SERVICES (if any).

3.5.2 A COMPANY that fails to demonstrate the capacity to provide the CONSULTANCY SERVICES as described in the CONTRACT shall be disqualified from further participation in the selection procedure.

**Financial  
Proposal**

3.6 The Financial Proposal shall be prepared using the form in Section 3 of this RFP. The BID PRICE stipulated in the Financial Proposal shall be calculated based on the requirements and instructions defined in EXHIBIT B – PRICING of the CONTRACT. PARTICIPANTs shall submit Filled in EXHIBIT B – PRICING as attachment to their Financial Proposals.

3.7 COMPANIES being non-resident of Georgia may express the price only in U.S. Dollars, whereas COMPANIES being resident of Georgia may express the price only in Georgian Lari. For evaluation purposes, the PROPOSALS submitted in Georgian Lari will be converted based on the official exchange rate of National Bank of Georgia on the starting date of submission of PROPOSALS (February 22, 2021). The currency of the CONTRACT signed with the awarded COMPANY shall be U.S. Dollars only.

3.8 COMPANIES who provide price escalation in their Financial Proposals shall be disqualified.

3.9 The Schedule of Payments is defined in the EXHIBIT C – PAYMENT SCHEDULE of the CONTRACT. PARTICIPANTs shall submit Filled in EXHIBIT C – PAYMENT SCHEDULE as attachment to their Financial Proposals.

**4. Submission  
and Receipt of  
Proposals**

4.1 COMPANIES shall submit their PROPOSALS in electronic form only. The PROPOSAL shall contain no interlineations or overwriting.

- 4.2 An authorized representative of the COMPANY shall initial all pages of the PROPOSAL. The authorization may be in the form of a written power of attorney accompanying the PROPOSAL.
- 4.3 The PROPOSAL shall be sent to the email address indicated in paragraph 6 of the LOI and received by GOGC no later than the time and the date indicated in paragraph 6 of the LOI.
- 4.4 PARTICIPANTS are advised to submit PROPOSALS strictly based on the terms and conditions and specifications contained in the RFP DOCUMENTATION. This is a “Zero Deviation” RFP process. PROPOSALS with any deviation to the RFP DOCUMENTATION conditions shall be liable for rejection, except for terms and conditions defined in the clause 6.2.

## **5. Evaluation of Proposals**

- 5.1 The selection/evaluation of the PROPOSALS shall be performed by the EVALUATION PANEL constituted by GOGC.
- 5.2 During the selection/evaluation process of the PROPOSALS, to assist in the examination, evaluation and comparison of PROPOSALS, GOGC may, at its discretion, ask the PARTICIPANT for a clarification on its PROPOSAL. The request for such clarification and the response shall be in writing through email only.
- 5.3 The EVALUATION PANEL shall examine the PROPOSAL with the lowest BID PRICE first. The selection/evaluation of the PROPOSAL will be done on the basis of documents furnished by the PARTICIPANT and completeness and conformity of the PROPOSALS with respect to the RFP DOCUMENTATION requirements. First, GOGC shall determine whether the PROPOSAL is responsive to the requirements of the RFP DOCUMENTATION. A PROPOSAL shall be considered responsive only if:
  - a) It is received as per the formats specified;
  - b) It is received by the PROPOSAL submission Due Date including any extension thereof;
  - c) It is accompanied by the power(s) of attorney as specified;

- d) It contains all the information (complete in all respects) as requested in this RFP DOCUMENTATION (in formats same as those specified);
  - e) It does not contain any deviation.
- 5.4 GOGC reserves the right to reject any PROPOSAL, which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained in respect of such PROPOSAL.
- 5.5 GOGC may waive any minor informality, non-conformity or irregularity in a PROPOSAL, which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any PARTICIPANT.
- 5.6 After determining the responsiveness of the PROPOSAL with the lowest BID PRICE, the EVALUATION PANEL will determine the substantial responsiveness of the PROPOSAL to the RFP DOCUMENTATION. A substantially responsive PROPOSAL is one, which conforms to all the terms and conditions of the RFP DOCUMENTATION without deviations.
- 5.7 The determination of a PROPOSAL's responsiveness is to be based on the contents of the PROPOSAL itself without recourse to extrinsic evidence.
- 5.8 If the PROPOSAL is not substantially responsive, it will be rejected and may not subsequently be made responsive by the PARTICIPANT by correction of the nonconformity. The EVALUATION PANEL shall examine the PROPOSAL with the next lowest BID PRICE or choose to terminate the RFP process.
- 5.9 After determining the substantial responsiveness of the PROPOSAL with the lowest BID PRICE, the EVALUATION PANEL will invite the selected COMPANY for negotiations for CONTRACT.
- 5.10 In case, same amount of BID PRICE is quoted in two or more substantially responsive PROPOSALS, these PARTICIPANTS shall be asked to submit discount bid in terms of onetime percentage discount over previous quoted BID PRICE. As result, the EVALUATION PANEL will



invite the COMPANY with the lowest BID PRICE for negotiations for CONTRACT.

**6. Negotiations for Contract**

- 6.1 Negotiations for CONTRACT will be held at the date and address indicated in the invitation to be addressed to the selected COMPANY. Representatives conducting negotiations on behalf of the COMPANY must have written authority to negotiate and conclude a CONTRACT.
- 6.2 Negotiations for CONTRACT will include a discussion of the PROPOSAL, work plan, and organization and staffing. GOGC and the selected COMPANY will finalize the time schedule, work schedule, logistics, deliverables and reporting.
- 6.3 The draft CONTRACT is provided in Section 4 of this RFP. EMPLOYER and the selected PARTICIPANT shall sign the CONTRACT within 10 DAYS after invitation to negotiate is sent to the selected PARTICIPANT. For the avoidance of any doubts, each PARTICIPANT acknowledges and agrees that the agreed CONTRACT has to be essentially in the form of the Form of CONTRACT included in Section 4 of this RFP and PARTICIPANTS are not entitled to request substantial modifications of the draft CONTRACT. If selected PARTICIPANT refuses to sign the CONTRACT, GOGC will invite the PARTICIPANT, whose PROPOSAL conforms with the requirements of the RFP DOCUMENTATION and has the next lowest BID PRICE to negotiate a CONTRACT or choose to terminate the RFP process and not enter into the CONTRACT with any of the PARTICIPANTS.

**7. Confidentiality**

- 7.1 Information relating to evaluation of PROPOSALS and recommendations concerning awards shall not be disclosed to the COMPANIES, who submitted the PROPOSALS or to other persons not officially concerned with the process, until the publication of the award of CONTRACT. The undue use by any COMPANY of confidential information related to the process may result in the rejection of its PROPOSAL.

**8. Disputes and Governing Law**

- 8.1 This RFP shall be governed by and construed in accordance with Georgian law.

8.2 Any dispute arising out of or in connection with this RFP shall be decided by Georgian Courts.

### SECTION 3. PROPOSAL – FORM

**Note:** *Comments in brackets provide guidance only for the preparation of Financial Proposal; therefore they should not appear on the Financial Proposal to be submitted.*

[Location, Date]

To: JSC Georgian Oil and Gas Corporation

Dear Sir:

We, the undersigned, offer to provide CONSULTANCY SERVICES for Gardabani III 272 MW Combined Cycle Power Plant Project in accordance with your Request for Proposal #CCPP272-02 dated [Insert date]. Our Financial Proposal is for the BID PRICE of [Insert amount(s) in words and figures]. This amount includes all costs and expenses required to carry out the SERVICES and all Taxes levied on the SERVICES or imposed upon the CONSULTANT in connection with or as a result of carrying out the SERVICES, excluding VAT.

Our PROPOSAL shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the PROPOSAL, i.e., before the date indicated in sub clause 1.4 of clause 1. (Introduction) of the INSTRUCTIONS.

We understand you are not bound to accept any PROPOSAL you receive.

Yours sincerely,

Attachments:

- Documents verifying the Economic and Financial Capacity of the PARTICIPANT (clause 3.2 of the INSTRUCTIONS);
- A brief description of the COMPANY's organization (sub-clause 3.5.1 (a) of the INSTRUCTIONS);
- Documents confirming the experience of a COMPANY (sub-clauses 3.5.1 (b) of the INSTRUCTIONS);
- Information/documentation on proposed key personnel (sub-clauses 3.5.1 (c) of the INSTRUCTIONS);
- Information on SUBCONTRACTORS (if any) (sub-clauses 3.5.1 (d) of the INSTRUCTIONS);
- Filled in EXHIBIT B – PRICING (clause 3.6 of the INSTRUCTIONS);
- Filled in EXHIBIT C – PAYMENT SCHEDULE (clause 3.9 of the INSTRUCTIONS);
- The document verifying authorization of the COMPANY's representative (clause 4.2 of the INSTRUCTIONS).

Authorized Signature [*In full and initials*]: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Section 4 – CONTRACT

**Lump-Sum Contract for Consultancy Services for  
Gardabani III 272 MW Combined Cycle Power Plant Project**

**CONTRACT # [●]**

**[●], 2021**

## Section 4 – CONTRACT

This Contract for CONSULTANCY SERVICES for Gardabani III 272 MW Combined Cycle Power Plant Project is made on [●], 2021

### BY AND BETWEEN

Georgian Oil and Gas Corporation JSC, a joint stock company organized and existing under the laws of Georgia, registration number: 206237491 having its registered office at Kakheti Highway N21, Isani-Samgori District, Tbilisi, ("EMPLOYER"), represented by its General Director, Mr. Givi Bakhtadze

**ON THE ONE PART**

AND

[●].

**ON THE OTHER PART**

EMPLOYER and CONSULTANT hereinafter referred to individually as a "PARTY" and together as the "PARTIES".

### WHEREAS:

- A. EMPLOYER has launched relevant procurement procedure under the "Special Rules for the Procurement of Goods and Services by Georgian Oil and Gas Corporation JSC", as approved by the Government of Georgia with the resolution N713, dated November 27, 2020;
- B. [●] has been selected as a winner with the price of [●] ([●]) [●] excluding VAT, and EMPLOYER desires to have CONSULTANT provide certain SERVICES as hereinafter specified; and
- C. CONSULTANT, represents that it has the expertise, resources and skills of suitable quality to satisfactorily and efficiently provide the SERVICES hereunder, and is willing and able to do so in accordance with the terms and conditions set out hereafter.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

### CLAUSE 1. DEFINITIONS

- 1.1 In the CONTRACT the undernoted words and expressions shall have the meanings hereby ascribed to them and unless otherwise specified shall be used for the purpose of interpreting the CONTRACT:

"ADVANCE PAYMENT"	means the payments by EMPLOYER to CONSULTANT in accordance to the provisions of Sub-Clause 12.2 and Sub-Clause 12.3 of this CONTRACT.
"ADVANCE PAYMENT GUARANTEE"	has a meaning ascribed to it in Clause 13.
"AMENDMENT(S)"	means any amendment made to the CONTRACT in accordance with the provisions of Clause 20 of this CONTRACT.
"APPLICABLE LAW"	means the Georgian law as the same may have been modified, extended, amended, supplemented or replaced from time to time.
"ACT OF ACCEPTANCE"	means a document issued and dully signed by PARTIES, according to EXHIBIT D, which certifies

#### Section 4 – CONTRACT

	completion and acceptance of the SERVICES or part of the SERVICES to be provided by the CONSULTANT based on terms and conditions set forth in this CONTRACT.
“ED”	means a preliminary engineering design of the CCTPP PROJECT to be submitted to the relevant authority for obtaining a (conditional) construction permit for the CCTPP PROJECT.
“BUSINESS DAY”	means any day other than a Saturday, Sunday or a legal holiday in Georgia.
“BID PRICE”	means the final bid price provided by CONSULTANT for the delivery of SERVICES under this CONTRACT.
“CONTRACT”	means the present document comprising Clause 1 to Clause 30 inclusive and all appendices annexed hereto, together with all other documents as may be incorporated herein by reference and any AMENDMENT(S) as may be later agreed in writing.
“CONTRACTOR”	means [Calik Enerji Sanayi Ve Ticaret AS] – the Contractor under the EPC CONTRACT.
“CONSULTANT PERSONNEL” or “PERSONNEL”	means all personnel provided by CONSULTANT, SUBCONTRACTOR and/or their affiliates in relation to the performance of the SERVICES, including those personnel listed in EXHIBIT E hereto, together with any additional personnel as may be required for the proper performance of the SERVICES.
“CONTRACT PRICE”	means the sum of all amounts as defined in Sub-Clause 12.1.
“CONSULTANT REPRESENTATIVE”	means the person(s) nominated by CONSULTANT in accordance with the provisions of Sub-Clause 3.3.
“CONTRACTOR’S DOCUMENTS”	means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature supplied by CONTRACTOR within scope of EPC CONTRACT, including those listed under Annex 3 of EXHIBIT A.
“COMMENCEMENT DATE”	for each PHASE of CONSULTANCY SERVICES means the date when relevant notice under Clause 5 is served upon CONSULTANT.
“CORRESPONDENCE”	means any written communication or correspondence between PARTIES during execution of the SERVICES under this CONTRACT pursuant to provisions of Sub-Clause 29.5.

#### Section 4 – CONTRACT

“CCTPP PROJECT”	means the Engineering, Procurement and Construction (EPC) Project of Gardabani-III 272 MW CCTPP being carried out by CONTRACTOR under terms and conditions of EPC CONTRACT.
“CCTPP PROJECT SCHEDULE”	means the latest Project Schedule for Gardabani-III 272 MW CCTPP provided by CONTRACTOR and annexed to EXHIBIT A as Annex 2, as the same may have been modified or amended by the CONTRACTOR from time to time.
“DELIVERABLE”	means all data and information, logs, records, plans, drawings, specifications, calculations, designs, technical information, photographs, other documents, information and/or reports, review findings and comments to be prepared and/or obtained and/or provided by the CONSULTANT, including those listed in EXHIBIT D hereto, as a part of or during the performance of SERVICES under this CONTRACT, including any copyright therein.
“DEFAULT”	means any breach of an obligation of either PARTY under the CONTRACT or any non-compliance with or default, misconduct, act, omission against any obligation under the CONTRACT whether made deliberately or by negligence.
“DEFECTS NOTIFICATION PERIOD”	Means the 24 (twenty-four) months period for notifying defects in the works related to the CCTPP PROJECT to the CONTRACTOR, calculated from the date of TAKING-OVER CERTIFICATE FOR GARDABANI III CCTPP
“EFFECTIVE DATE”	means the date when the CONTRACT becomes effective as set forth in Sub-Clause 4.1 of this CONTRACT.
“EPC CONTRACT”	means the Turnkey Contract for Engineering, Procurement and Construction of Gardabani-III 272 MW CCTPP signed on [•] by EMPLOYER and CONTRACTOR and accomplished based on the conditions for Turn-Key Engineering, Procurement and Construction Contracts (the Silver Book of 1999) of International Federation of Consulting Engineers (FIDIC).
“EMPLOYER REPRESENTATIVE”	means a person nominated by EMPLOYER in accordance with the provisions of Sub-Clause 3.2.
“FORCE MAJEURE”	shall have the meaning ascribed to it in Clause 28 of this CONTRACT.
“LOCAL CURRENCY” or “GEL”	means the National Currency of Georgia.
“NOTICE”	means any instructions, notices, authorizations, approvals and acknowledgements issued by either PARTY in respect of the CONTRACT pursuant to provisions in Sub-Clause 29.5 and signed by

#### Section 4 – CONTRACT

	authorized representative of the PARTY as set forth in Clause 3 of this CONTRACT.
“PARTIES”	has the meaning ascribed to this term in the preamble to this CONTRACT.
“PARTY”	has the meaning ascribed to this term in the preamble to this CONTRACT.
“PENALTIES”	shall have the meaning ascribed to it in Clause 27 of this CONTRACT.
“PERFORMANCE SECURITY”	has the meaning ascribed to it in Clause 14 of the CONTRACT.
“EXECUTION PHASE” or “PHASE”	means the phases of implementation of the CONSULTANCY SERVICES as summarised in Sub-Clause 8.1 and specified in EXHIBIT A and EXHIBIT D.
“PROJECT EXECUTION PLAN”	means the document to be prepared by CONSULTANT based on requirements of Sub-Clause 2.2 of EXHIBIT A and approved by EMPLOYER pursuant to Clause 8 of this CONTRACT.
“REVIEW PERIOD”	means the period for review of CONTRACTOR’S DOCUMENTS – each review period shall not exceed 11 (eleven) business days calculated from the date on which electronic copy of the document received. In any case where the Contractor resubmits the Contractor’s Document for the Employer to review, the Employer shall review the Contractor’s Document in 5 (five) business Days.
“SERVICE” or “CONSULTANCY SERVICES”	means overall engineering review, project management and consultancy services for Gardabani III 272 MW Combined Cycle Power Plant Project (CCTPP Project), which shall be executed in several PHASES as defined under this CONTRACT.
“SERVICE PERIOD”	means the estimated duration of the SERVICES, to be provided by CONSULTANT, as set forth and subject to provisions of Clause 6 of this CONTRACT.
“SUBCONTRACT”	means any contract of any tier directly or indirectly between CONSULTANT and any party (other than EMPLOYER or any CONSULTANT employees) entered into or utilized for the provision of any part of the SERVICES.
“SUBCONTRACTOR”	means any party (other than CONSULTANT) to the SUBCONTRACT.
“TAKING-OVER CERTIFICATE FOR GARDABANI III CCTPP”	means the certificate issued by the EMPLOYER to the CONTRACTOR signifying that the works related to the CCTPP PROJECT have been taken over by the EMPLOYER.



## Section 4 – CONTRACT

“TERMS OF REFERENCE” or “TOR”	means the document - “Terms of Reference (TOR) for Consultancy Services for Gardabani III – 272 MW Combined Cycle Thermal Power Plant (CCTPP)”, annexed to this Contract as EXHIBIT A.
“THIRD PARTY”	Means any entity that is not part of EMPLOYER or CONSULTANT.
“VAT”	means the Value Added Tax (VAT) payable in Georgia based on APPLICABLE LAW.
“WORKSITE” or “SITE”	means the area where the Gardabani III CCTPP is planned to be built or any other location(s), premises and places at or upon or over which the SERVICES or part thereof are to be provided by the CONTRACTOR.

### CLAUSE 2. INTERPRETATION

- 2.1 Words importing the singular also include the plural and words importing the masculine gender shall include the feminine and neuter genders where the context so requires and vice versa.
- 2.2 Headings contained in the CONTRACT are included for convenience and reference only, and they shall not affect in any way the interpretation thereof.
- 2.3 References to preamble, recitals, clauses, exhibits and appendices are references to Preamble, Recitals, Clauses, Exhibits and Appendices of the CONTRACT.
- 2.4 In the event of any conflict, ambiguity or discrepancy between any parts of the CONTRACT, the order of precedence shall be:
- (i). CONTRACT;
  - (ii). EXHIBIT A – TERMS OF REFERENCE (TOR) and any Annexes thereto;
  - (iii). EXHIBIT B – PRICING;
  - (iv). EXHIBIT C – PAYMENT SCHEDULE;
  - (v). EXHIBIT D – DELIVERABLES AND REPORTING REQUIREMENTS;
  - (vi). EXHIBIT E – CONSULTANT’S PERSONNEL.
  - (vii). EXHIBIT F - ADVANCE PAYMENT BANK GUARANTEE-(DRAFT)
  - (viii). EXHIBIT G - PERFORMANCE SECURITY BANK GUARANTEE-(DRAFT)
- 2.5 Any reference to the APPLICABLE LAW or any other law (including any agreement, statute or standard) shall be construed as a reference to such law as the same may have been modified, extended, amended, supplemented or replaced from time to time.
- 2.6 All references to day(s), week(s) and month(s) shall mean calendar rather than working day(s), week(s) and month(s) unless otherwise specified.
- 2.7 The word “includes” or “including” means “including, without limitation”.

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### **CLAUSE 3. EMPLOYER AND CONSULTANT REPRESENTATIVES**

3.1 EMPLOYER and CONSULTANT shall nominate the EMPLOYER REPRESENTATIVE and the CONSULTANT REPRESENTATIVE respectively, who shall be readily available to enable both EMPLOYER and CONSULTANT to effectively discharge the obligations of the PARTIES under this CONTRACT.

#### 3.2 EMPLOYER REPRESENTATIVE

3.2.1 The EMPLOYER REPRESENTATIVE shall act for EMPLOYER in all matters under the CONTRACT and may delegate his authority from time to time provided that the identity of any delegate together with the scope of such delegation is provided to CONSULTANT REPRESENTATIVE in writing.

3.2.2 Any action required or permitted to be taken, and any document and/or amendment required or permitted to be executed under this CONTRACT by the authorized EMPLOYER REPRESENTATIVE may be taken or executed by a signatory indicated in relevant extract of the EMPLOYER from the Registry of Entrepreneurs and Non-Entrepreneurial (Non-Commercial) Legal Entities.

3.2.3 Any communication or NOTICE given to EMPLOYER REPRESENTATIVE shall be considered as given to EMPLOYER.

3.2.4 EMPLOYER may at any time change the EMPLOYER REPRESENTATIVE by written NOTICE to CONSULTANT.

#### 3.3 CONSULTANT REPRESENTATIVE

3.3.1 CONSULTANT shall appoint the CONSULTANT'S REPRESENTATIVE and shall give him/her all authority necessary to act on the CONSULTANT'S behalf under the CONTRACT within 5 (five) days after EFFECTIVE DATE by submitting to the EMPLOYER for consent the relevant NOTICE specifying the name and particulars of the person proposed to be appointed as the CONSULTANT'S REPRESENTATIVE and the delegated powers, functions and authority.

3.3.2 CONSULTANT REPRESENTATIVE shall have full charge of all activities of CONSULTANT in relation to the SERVICES and shall have full authority to represent and commit CONSULTANT in all matters concerning the performance of the CONTRACT.

3.3.3 CONSULTANT REPRESENTATIVE may delegate any of his/her authority to any nominated deputy, the terms of such delegation being subject to the prior written approval of EMPLOYER which shall not be unreasonably withheld or delayed.

3.3.4 CONSULTANT REPRESENTATIVE or any nominated deputy shall be suitably qualified person, fluent in English language, who is competent to carry out the duties as per the CONTRACT including exercising the authority delegated by EMPLOYER pursuant to Clause 11.

3.3.5 In the event that EMPLOYER at any time considers the conduct of any CONSULTANT REPRESENTATIVE detrimental to the effective delivery and performance of the SERVICES, after EMPLOYER'S NOTICE, CONSULTANT shall at its sole cost and expense replace such individual.

3.3.6 Any communication or NOTICE given to CONSULTANT REPRESENTATIVE shall be considered as given to CONSULTANT.

### **CLAUSE 4. EFFECTIVENESS OF CONTRACT**

4.1 This CONTRACT shall become effective, valid and binding on the PARTIES as of the date the latest from the following events occurred (hereafter "EFFECTIVE DATE"):

(a) signing of this CONTRACT by the PARTIES;

## Section 4 – CONTRACT

(b) upon delivery to EMPLOYER of the PERFORMANCE SECURITY as set forth in Clause 14.

- 4.2 Unless terminated earlier or extended by mutual consent of the PARTIES, this Contract will remain valid till [●], [●].

### **CLAUSE 5. COMMENCEMENT DATE OF SERVICES**

- 5.1 EMPLOYER shall give a NOTICE to CONSULTANT to commence the 1st PHASE OF CONSULTANCY SERVICES within 40 (forty) days after the EFFECTIVE DATE.
- 5.2 CONSULTANT shall commence the 1st PHASE OF CONSULTANCY SERVICES upon receipt of the NOTICE as per the foregoing Sub-Clause 5.1.
- 5.3 EMPLOYER shall give a NOTICE to the CONSULTANT to commence the 2nd PHASE OF CONSULTANCY SERVICES within 14 (fourteen) days after the 1st PHASE OF CONSULTANCY SERVICES is completed.
- 5.4 Notwithstanding Sub-Clause 5.3, if before the EMPLOYER serves the NOTICE to commence the 2nd PHASE OF CONSULTANCY SERVICES the CONTRACT is suspended as per Clause 21, the foregoing NOTICE shall be given to the CONSULTANT within 14 (fourteen) days after the suspension is lifted.
- 5.5 CONSULTANT shall commence the 2nd PHASE OF CONSULTANCY SERVICES within 20 (twenty) days after receipt of relevant NOTICE as per Sub-Clause 5.3.
- 5.6 The NOTICE to CONSULTANT to commence the 3rd PHASE OF CONSULTANCY SERVICES shall be issued by EMPLOYER within 30 (thirty) days after issuance of the TAKING-OVER CERTIFICATE FOR GARDABANI III CCTPP.
- 5.7 CONSULTANT shall commence the 3rd PHASE OF CONSULTANCY SERVICES within 20 (twenty) days after receipt of the relevant NOTICE as per Sub-Clause 5.6.

### **CLAUSE 6. SERVICE PERIOD**

- 6.1 An estimated SERVICE PERIOD under the CONTRACT to be provided by CONSULTANT, totals to 1625 (one thousand six hundred and twenty-five) days, including:
- (a) 1st PHASE of CONSULTANCY SERVICES – period of maximum 45 (forty-five) days, starting from the date when the relevant NOTICE is served upon CONSULTANT pursuant to Sub-Clause 5.1. This period includes time for submission by CONSULTANT of a review report on the ED – within 11 (eleven) business days after the CONSULTANT receives the ED; and of other DELIVERABLES pursuant to EXHIBIT D.
  - (b) 2nd PHASE of CONSULTANCY SERVICES – period of 28 (twenty-eight) month / approx. 850 (eight hundred fifty) days, starting from the date when the relevant NOTICE is served upon CONSULTANT pursuant to Sub-Clause 5.3. This period includes revision of design documents (other than ED), supervision, project management and other activities by CONSULTANT during construction phase of the CCTPP PROJECT; and submission of relevant DELIVERABLES pursuant to EXHIBIT D.
  - (c) 3rd PHASE of CONSULTANCY SERVICES – period of 24 (twenty-four) month / approx. 730 (seven hundred thirty) days, starting from the date when the relevant NOTICE is served upon CONSULTANT pursuant to Sub-Clause 5.6. This period includes supervision and reporting during the DEFECTS NOTIFICATION PERIOD; and submission of relevant DELIVERABLES pursuant to EXHIBIT D.

## Section 4 – CONTRACT

- 6.2 The estimated SERVICE PERIOD indicated in Sub-Clause 6.1 is provided based on assumption of continues, uninterrupted or unsuspended SERVICES, subject to provisions of Clause 21 of the CONTRACT.

### **CLAUSE 7. CONSULTANT'S GENERAL OBLIGATIONS**

- 7.1 CONSULTANT shall perform the SERVICES and carry out its obligations hereunder in conformity with the APPLICABLE LAW and with all due diligence, efficiency and economy, in accordance with international professional standards and practices applicable to SERVICES with regard to engineering and design review, project management, scheduling, financial and cost control, supervision and inspection, document control and other activities/works in relation to the SERVICES, and shall observe sound management practices, and employ appropriate safe and effective technology and methods. CONSULTANT shall always act, in respect of any matter relating to this CONTRACT or to the SERVICES, as faithful adviser to EMPLOYER, and shall at all times support and safeguard the EMPLOYER'S legitimate interests in any dealings with the CONTRACTOR, SUBCONTRACTORS or THIRD PARTIES.
- 7.2 CONSULTANT confirms and acknowledges that it has fully determined the class, quantity and quality of CONSULTANT'S PERSONNEL and other resources which will be required for proper performance of the SERVICES and that it has obtained for itself a full understanding and knowledge of and has satisfied itself as to the nature, extent and scope of the SERVICES defined under this CONTRACT.
- 7.3 To ensure that performance and completion of the SERVICES is not delayed or impeded, CONSULTANT shall be solely responsible for ensuring the timely request of any information from EMPLOYER, CONTRACTOR or its SUBCONTRACTOR as may be required by CONSULTANT for the performance of the SERVICE. For the avoidance of any doubts and notwithstanding anything to the contrary in this CONTRACT, EMPLOYER is not obliged to provide CONSULTANT with any other information than the readily available data and information, in the original language of such data or information, which is under possession of EMPLOYER by the date of the request.
- 7.4 CONSULTANT shall notify EMPLOYER without undue delay:
- (a) of all things, which in the opinion of CONSULTANT appear to be in conflict with the APPLICABLE LAW, this CONTRACT and/or EPC CONTRACT.
  - (b) on all matters affecting or likely to affect the provision of the SERVICES under this CONTRACT and/or to the works performed by CONTRACTOR under EPC CONTRACT, including (i) Health, Safety and Environment (HSE) or any other incidents and accidents; (ii) any proposed or actual stoppages of work, industrial disputes or other matters.
- 7.5 CONSULTANT shall provide the SERVICES based on Gregorian calendar and shall give the SERVICES the highest priority and perform them diligently and expeditiously without interruption.

### **CLAUSE 8. SCOPE OF SERVICES**

- 8.1 The scope of the SERVICES defined under this CONTRACT is provided in EXHIBIT A and can be divided and summarised into following EXECUTION PHASES and main activities of CONSULTANCY SERVICES, which also correspond to the development phases of CCTPP PROJECT:
- a) 1st PHASE of CONSULTANCY SERVICES – main activity: Review Services for ED;
  - b) 2nd PHASE of CONSULTANCY SERVICES – main activity: Review Services for other works than ED, Quality Assurance Plans and Procedures; Supervision and Project Management Services;
  - c) 3rd PHASE of CONSULTANCY SERVICES – main activity: Supervision during DEFECT NOTIFICATION PERIOD.

#### Section 4 – CONTRACT

- 8.2 CONSULTANCY SERVICES shall be scheduled and performed following the key dates or milestones delivered from the CCTPP PROJECT SCHEDULE.
- 8.3 CONSULTANT, within 10 (ten) days after COMMENCEMENT DATE, shall prepare and submit for approval to EMPLOYER the PROJECT EXECUTION PLAN, as defined under Sub-Clause 2.2 of EXHIBIT A.
- 8.4 EMPLOYER, within 10 (ten) days after submission by CONSULTANT of the PROJECT EXECUTION PLAN, shall review it and after satisfying himself that it covers the requirements of the TOR and this CONTRACT shall approve it, provided however that some components and/or part(s) of this document may have to be modified or amended by the CONSULTANT from time to time, subject to actual progress of CONSULTANCY SERVICES or any part thereof and updated CCTPP PROJECT SCHEDULE.
- 8.5 In case of any amendment(s) or modification is required, as prescribed in Sub-Clause 8.4 above, and following the request from EMPLOYER, CONSULTANT shall revise and return the PROJECT EXECUTION PLAN or any part thereof within 5 (five) days after receiving the relevant NOTICE. The resubmitted document(s) shall be reviewed and approved by the EMPLOYER based on the terms and conditions defined in Sub-Clause 8.4 above.
- 8.6 Without prejudice to other provisions of this CONTRACT and after approval by EMPLOYER of the PROJECT EXECUTION PLAN and/or any modification or amendment thereto, in accordance to Sub-Clauses 8.4-8.5, it shall become binding for the PARTIES and CONSULTANT shall perform and execute the SERVICES in accordance to this document.
- 8.7 CONSULTANT shall be deemed to have satisfied itself, before entering into the CONTRACT as to the scope, extent and nature of the SERVICES and content of the CONTRACT, including but not limited to those matters which effect progress or performance of the SERVICE and the correctness and sufficiency of the rates and prices in EXHIBIT B.
- 8.8 CONSULTANT expressly acknowledges that it is well informed on the provisions and application of the APPLICABLE LAW towards the SERVICES, CONSULTANT, its SUBCONTRACTOR or affiliates.
- 8.9 CONSULTANT shall be deemed to have fully accounted and made provision for any part of the SERVICES or elements thereof not expressly detailed in the CONTRACT, but nevertheless necessary for the complete and proper provision of the SERVICES.
- 8.10 Any failure by CONSULTANT to take into account in advance the matters referred to in Sub-Clauses 8.7 – 8.9 above, which affect the provision and performance of the SERVICE, shall not thereafter relieve CONSULTANT from performing its obligations under CONTRACT and EMPLOYER shall not be liable for any claims or demands from CONSULTANT for additional payments on account of such matters for which the CONSULTANT has failed to account and provide.

#### **CLAUSE 9. LOCATION OF SERVICES**

- 9.1 The SERVICES shall be performed at such locations and/or WORKSITE as are specified in EXHIBIT A and EXHIBIT B hereto and, where the location and/or WORKSITE of a particular task is optional and not clearly identified/defined by the EFFECTIVE DATE of the CONTRACT, at such locations and/or WORKSITE, whether in Georgia or elsewhere, as the EMPLOYER may approve.

#### **CLAUSE 10. CONSULTANT PERSONNEL**

- 10.1 CONSULTANT undertakes to provide experienced, suitably qualified and competent PERSONNEL in sufficient numbers at all times to ensure proper performance and completion of the SERVICES. The titles and job descriptions, resumes verifying qualifications for each of the CONSULTANT PERSONNEL are provided by the CONSULTANT in the EXHIBIT E. The CONSULTANT PERSONNEL listed by title as well as by name in the same EXHIBIT are hereby approved by the EMPLOYER. The CONSULTANT shall not be entitled to request for the replacement/substitution of the CONSULTANT

#### Section 4 – CONTRACT

PERSONNEL enlisted in EXHIBIT E with more than 4 (four) persons after the execution of the CONTRACT. This limitation does not apply to cases stipulated in Sub-Clauses 10.10 and 10.11 hereunder. In any case, the replacing/substituting person shall have equivalent or better qualification than the one being replaced.

- 10.2 The rights and duties of the CONSULTANT PERSONNEL shall be defined in the contract between such personnel and CONSULTANT and, to the extent the personnel and/or the SUBCONTRACTORS are located in Georgia, the CONSULTANT shall comply, and shall ensure that all of its staff and/or SUBCONTRACTORS comply, with all APPLICABLE LAWS and regulation regarding employment of personnel or contracting with SUBCONTRACTORS in Georgia.
- 10.3 CONSULTANT shall be responsible for the acts or defaults of any SUBCONTRACTOR and the CONSULTANT PERSONNEL as if they were the acts or defaults of CONSULTANT.
- 10.4 CONSULTANT shall ensure that all supervisory and or senior CONSULTANT PERSONNEL are able to read, write and speak English fluently.
- 10.5 Prior to the commencement of the SERVICES or any part thereof, CONSULTANT shall ensure that the interests of CONSULTANT PERSONNEL do not conflict with those of the EMPLOYER and that CONSULTANT PERSONNEL immediately make full disclosure to the EMPLOYER should a conflict of interest arise which might in any way prejudice the performance of the SERVICES.
- 10.6 CONSULTANT shall be solely responsible for and shall pay all salaries, wages, expenses and all other remuneration and benefits which may become due, including board and lodging for all CONSULTANT PERSONNEL (including but not limited to employees, agents and representatives) to provide and perform the SERVICES hereunder. In addition, CONSULTANT shall be solely responsible for and shall pay all social expenses, taxes, insurance premiums, medical costs (including but not limited to treatment for accidents, injuries and occupational diseases), and all other contributions and payments required by any Governmental authorities having jurisdiction over CONSULTANT PERSONNEL engaged in or associated with the SERVICES under the CONTRACT.
- 10.7 CONSULTANT shall bear responsibility for the provision and payment of all personnel visas, entry and re-entry permits, resident's permits, work permits, and all other authorizations required by the APPLICABLE LAW or documentation, medical and hospital services, protective and safety clothing, transportation to and from the WORKSITE, accommodation and subsistence, and generally all matters concerning CONSULTANT PERSONNEL, unless otherwise provided for in the CONTRACT.
- 10.8 CONSULTANT shall arrange and be liable for all expenses incurred in transporting CONSULTANT PERSONNEL between their points of origin and WORKSITE or other locations as required for provision of SERVICES under this CONTRACT.
- 10.9 CONSULTANT shall be responsible, at its sole cost and expense, for providing and scheduling the normal rotation of all the CONSULTANT PERSONNEL for rest and leave purposes, including without limitation, transportation and accommodation during transit. CONSULTANT shall ensure that it has sufficient personnel available to cover such rotation and that such replacement PERSONNEL are equally experienced and competent as the PERSONNEL they are replacing. Prior to commencement of the SERVICES, and from time to time as required during the SERVICE PERIOD the CONSULTANT shall furnish the EMPLOYER reasonably in advance with a copy of CONSULTANT'S proposed rotational leave schedule.
- 10.10 If, for any reason beyond the reasonable control of the CONSULTANT, such as retirement, death, medical incapacity, among others, it becomes necessary to replace any of the CONSULTANT PERSONNEL, CONSULTANT shall forthwith provide as a replacement a person of equivalent or better qualifications, without any claim for additional costs arising out of such replacement.
- 10.11 EMPLOYER may instruct CONSULTANT to remove and replace at CONSULTANT'S sole cost and expense any of the CONSULTANT PERSONNEL who in the reasonable opinion of the EMPLOYER are:

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- (a) incompetent or negligent in the performance of their duties or are guilty of misconduct as so determined by the EMPLOYER; or
- (b) engaged in activities which are contrary or detrimental to the interests of the EMPLOYER; or
- (c) not conforming with relevant procedures as required by the EMPLOYER or persists in any conduct likely to be prejudicial to safety, health or the environment; or
- (d) of ill health and/or unsuitable for continued involvement with the SERVICES; or
- (e) has been charged with having committed a criminal action; or
- (f) superfluous to the SERVICES and whose continued assignment has not been satisfactorily justified to the EMPLOYER.

whereupon, the CONSULTANT shall remove such CONSULTANT PERSONNEL from conducting the SERVICES forthwith and arrange for a replacement with person equivalent or better qualifications.

- 10.12 CONSULTANT shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of the CONSULTANT PERSONNEL.
- 10.13 In the event of a removal or replacement of the CONSULTANT PERSONNEL or SUBCONTRACTOR, CONSULTANT shall ensure that in no event shall the process of replacing delay, interrupt, or materially alter in any way the performance of the SERVICES. CONSULTANT shall complete the process of the removal and replacement of such CONSULTANT PERSONNEL or SUBCONTRACTOR within 30 (thirty) days of the request from EMPLOYER or the CONSULTANT'S notice to the EMPLOYER.
- 10.14 CONSULTANT shall assume all liability for and shall save, indemnify, release, defend and hold harmless the EMPLOYER from and against any and all claims, demands, causes of action, losses, liabilities, costs and expenses (including legal costs and expenses) arising out of CONSULTANT'S failure or alleged failure to comply with its obligations and responsibilities as set out in Clause 10.

#### **CLAUSE 11. ASSIGNMENT OF DUTIES AND DELEGATION OF AUTHORITY TO CONSULTANT**

- 11.1 EMPLOYER, within the scope of the SERVICES, may from time to time assign certain duties and delegate authority to the CONSULTANT to act on his behalf under the EPC CONTRACT, and may also revoke such assignment or delegation. The assignment, delegation or revocation shall not take effect until a copy of relevant NOTICE issued pursuant to Sub-Clause 29.5 has been received by CONSULTANT.
- 11.2 CONSULTANT shall only be authorized to act with the CONTRACTOR to the extent defined by the delegation. All approval, check, certificate, consent, examination, inspection, request, or similar act by CONSULTANT, in accordance with the delegation, shall be deemed to be the act of EMPLOYER. However, this shall not relieve CONSULTANT from any responsibility it has under the CONTRACT, including responsibility for errors, omissions, discrepancies and non-compliances.
- 11.3 CONSULTANT in no case shall have authority to amend the EPC CONTRACT or relieve CONTRACTOR of any duties, obligations, liability or responsibilities under the EPC CONTRACT.
- 11.4 EMPLOYER, up to its sole discretion and at any stage of the SERVICE PERIOD, shall be entitled to assign this CONTRACT in its entirety and with all deriving rights and obligations thereof, to any of its affiliates (whether existing or established later) who will be in charge of implementing Gardabani-III 272 MW CCTPP project and who shall become legal successor in title for the purposes of interpretation and application of this CONTRACT. Such assignment shall become affective from the date specified in respective NOTICE as served upon the CONSULTANT. The latter shall have no right to object such assignment provided however that (a) the CONSULTANT is not deprived of any rights enjoyed before the assignment; (b) the assignment has no detrimental effect on the remuneration of SERVICES. Following the assignment, beneficiaries in all valid bank guarantees shall be updated accordingly.

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### **CLAUSE 12. COMPENSATION AND PAYMENT**

#### **12.1 CONTRACT PRICE**

12.1.1 CONTRACT PRICE is defined as the sum of all amounts due to be paid to CONSULTANT by EMPLOYER for performance of the SERVICES, calculated in accordance with EXHIBIT B as such total may be varied in accordance with the provision of the CONTRACT provided however that in relation to calculating the amounts of the PENALTIES, the PERFORMANCE SECURITY and the ADVANCE PAYMENT, the CONTRACT PRICE shall be deemed to be [●] US Dollars ([●]), which is the estimated total value of the CONTRACT.

12.1.2 In case of any discrepancy between the unit and sum price as per the EXHIBITs of the CONTRACT, unit price shall prevail.

#### **12.2 ADVANCE PAYMENTS**

12.2.1 In case requested by CONSULTANT, the 1st (first) ADVANCE PAYMENT shall be made by EMPLOYER, in an amount of maximum 40% (forty) percent of the price for the 1ST PHASE OF CONSULTANCY SERVICES as defined under Clause 1 of EXHIBIT B. The remaining 60% (sixty) percent of the price for the 1ST PHASE OF CONSULTANCY SERVICES shall be paid by EMPLOYER pursuant to the provisions of Sub-Clause 12.3.2.

12.2.2 In case requested by CONSULTANT, the 2nd (second) ADVANCE PAYMENT shall be made by EMPLOYER, in an amount of maximum 10% (ten) percent of the price for the 2nd PHASE of CONSULTANCY SERVICES as defined under Clause 1 of EXHIBIT B.

#### **12.3 PAYMENT TERMS AND CONDITIONS**

12.3.1 The ADVANCE PAYMENTS, shall be transferred to the account designated by CONSULTANT after COMMENCEMENT DATE for each PHASE of CONSULTANCY SERVICES and within 10 (ten) days after submitting of the following documents by CONSULTANT:

- (a) Proforma Invoice indicating the amount of relevant ADVANCE PAYMENT, including VAT;
- (b) The ADVANCE PAYMENT GUARANTEE;
- (d) The valid certificate (declaration) of residence of CONSULTANT issued by the respective authority (applicable to non-resident CONSULTANT).

12.3.2 The payment for the remaining 60% (sixty) percent of the price for the 1st PHASE of CONSULTANCY SERVICES (mentioned in Sub-Clause 12.2.1) shall be transferred to the account designated by CONSULTANT within 10 (ten) days after submitting the following documents by CONSULTANT:

- (a) Relevant invoice, including VAT; and
- (b) Relevant ACT OF ACCEPTANCE;

12.3.3 The amounts of the 1st (first) and 2nd (second) ADVANCE PAYMENTS shall be repaid by deducting the proportionate amounts from the payments to be made pursuant to Clause 1 of EXHIBIT C.

12.3.4 The payments in equal instalments, pursuant to Clauses 1 and 2 of EXHIBIT C, shall be made by EMPLOYER to the account designated by CONSULTANT within 10 (ten) days after presentation of the following documents:

- (a) Relevant invoice(s), including VAT; and
- (b) Relevant ACT OF ACCEPTANCE.



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12.3.5 The payments for the SERVICE prescribed in Clauses 2 and 3 of EXHIBIT B, shall be transferred by EMPLOYER to the account designated by CONSULTANT within 10 (ten) days after presentation of the following documents:

(a) Relevant invoice(s), including VAT Invoice;

(b) Relevant ACT OF ACCEPTANCE together with travel voucher and/or other supporting documentation appended thereto.

12.3.6 The currency of the CONTRACT shall be US Dollar (USD). In case CONSULTANT is a resident entity, all payments pursuant to Sub-clause 12.3 against the invoices submitted by the CONSULTANT during the SERVICE PERIOD under this CONTRACT shall be made in GEL, in accordance with the official exchange rate of National Bank of Georgia as of the payment date, with regard to ADVANCE PAYMENTS, and date of signing the relevant ACT OF ACCEPTANCE by EMPLOYER, with regard to payments in equal instalments, as set forth in provisions of EXHIBIT C. In case the CONSULTANT is non-resident entity, payment shall be made in USD.

12.3.7 In case, the estimated SERVICE PERIOD or validity of the CONTRACT is extended, the EMPLOYER shall reimburse to the CONSULTANT the relevant additional or extended time for provision of SERVICES based on monthly payment rates defined in Sub-Clause 3.1 of EXHIBIT C. The monthly payment rates under this Sub-Clause shall not exceed the equal instalment amounts defined in Sub-Clauses 1.2 and 2.1 of EXHIBIT C respectively, including deductible proportionate amount defined as per Clause 1.3 of EXHIBIT C, and therefore amounts for quarterly payments under EXHIBIT C shall be recalculated to monthly rate as appropriate.

12.3.8 Notwithstanding the foregoing Sub-Clause 12.3.7, the PARTIES acknowledge and agree that: (a) the APPLICABLE LAW prohibits any amendment, variation and/or modification of the provisions of the CONTRACT, which increases the CONTRACT PRICE or adversely affects the conditions of the agreement referring to EMPLOYER, except for the case envisaged by Article 398 of the Civil Code of Georgia; and (b) provided that, upon occurrence of the circumstances referred to in the above mentioned Article of the Civil Code of Georgia, the CONTRACT PRICE cannot be increased above 10% thereof.

### 12.4 INTEREST ON DELAYED PAYMENTS

12.4.1 If CONSULTANT, dully performing its obligations under the CONTRACT, does not receive payment from EMPLOYER in accordance with the due dates defined in Sub-Clause 12.3, CONSULTANT shall be entitled to receive interest rate of 0.02% for each day of delay on the outstanding amount.

## **CLAUSE 13. ADVANCE PAYMENT GUARANTEE**

13.1 CONSULTANT shall deliver to EMPLOYER the ADVANCE PAYMENT GUARANTEE in the amounts equal to the ADVANCE PAYMENTS.

13.2 The ADVANCE PAYMENT GUARANTEE shall be denominated in US Dollars and shall consider bank's unconditional and irrevocable liability to pay, without protest or notification, complete amount of the ADVANCE PAYMENT GUARANTEE or part thereof upon EMPLOYER'S first request, provided that such payment(s) shall be made (i) without set-off, free and clear of any deductions, charges, fees, levies, taxes or withholdings of any nature, and (ii) without EMPLOYER being required to prove the grounds or reasons for the respective request, and notwithstanding any objection by CONSULTANT.

13.3 The ADVANCE PAYMENT GUARANTEE shall be issued by a bank qualified B+ or higher Fitch international rating or other equivalent international rating and shall be confirmed by JSC "Bank of Georgia" or JSC "TBC Bank.

13.4 All expenses related to the ADVANCE PAYMENT GUARANTEE, including the certification costs, are a part of the CONTRACT PRICE and shall be borne by CONSULTANT.

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- 13.5 The ADVANCE PAYMENT GUARANTEE shall substantially be in the form and substance attached hereto as EXHIBIT F of the CONTRACT.
- 13.6 The ADVANCE PAYMENT GUARANTEES shall be valid at least 30 (thirty) days after the relevant ACT OF ACCEPTANCE for the respective PHASE of CONSULTANCY SERVICES signed by EMPLOYER.
- 13.7 In case termination of the CONTRACT, the EMPLOYER is entitled to reimburse outstanding advance payment from the ADVANCE PAYMENT GUARANTEE.
- 13.8 EMPLOYER shall release the ADVANCE PAYMENT GUARANTEE within 30 (thirty) days after (i) the SERVICES and DELIVERABLES of respective PHASE are delivered to EMPLOYER and (ii) the relevant ACT OF ACCEPTANCE is issued, provided however that the fee associated with the bank confirmation of EMPLOYER REPRESENTATIVE signature and for the postal services is paid by CONSULTANT.
- 13.9 The amounts of the ADVANCE PAYMENT GUARANTEE shall be reduced by deductible proportionate amounts for the repayment of ADVANCE PAYMENT calculated in accordance to the relevant provision of EXHIBIT C.
- 13.10 In case EMPLOYER recovers money from the ADVANCE PAYMENT GUARANTEE, *inter alia*, as per Sub-Clauses 17.5 and Sub-Clause 27.1.(b) of this CONTRACT, CONSULTANT shall, within 14 days therefrom, replenish the ADVANCE PAYMENT GUARANTEE to the level which would have existed had no recovery made by EMPLOYER.

#### **CLAUSE 14. PERFORMANCE SECURITY**

- 14.1 15 days after the date of signing the CONTRACT by the PARTIES, CONSULTANT shall furnish the PERFORMANCE SECURITY as a security for due performance and fulfilment of its obligations under the CONTRACT for an amount equivalent to 10% of the CONTRACT PRICE in the form of unconditional and irrevocable Bank Guarantee from a bank qualified B+ or higher by Fitch International or other equivalent international rating and shall be confirmed by JSC "Bank of Georgia" or JSC "TBC Bank.
- 14.2 The PERFORMANCE SECURITY shall be denominated in US Dollars and shall consider bank's unconditional and irrevocable liability to pay, without protest or notification, complete amount of the bank guarantee or part thereof upon EMPLOYER'S first request, provided that such payment(s) shall be made (i) without set-off, free and clear of any deductions, charges, fees, levies, taxes or withholdings of any nature, and (ii) without EMPLOYER requested to prove or to show grounds or reasons for the respective request, and notwithstanding any objection by CONSULTANT.
- 14.3 CONSULTANT shall bear all costs and charges related to the issue and maintenance of the PERFORMANCE SECURITY.
- 14.4 The PERFORMANCE SECURITY shall substantially be in the form and substance attached hereto as EXHIBIT G of the CONTRACT. In case of failure by CONSULTANT to deliver the respective guarantee to EMPLOYER by the date of signing of this CONTRACT by the PARTIES, EMPLOYER shall have the right to withdraw awarding of the CONTRACT to CONSULTANT, unilaterally.
- 14.5 The validity of PERFORMANCE SECURITY Bank Guarantee shall exceed the completion of the SERVICE PERIOD specified in the CONTRACT and signing of the last ACT OF ACCEPTANCE for the 3rd PHASE on CONSULTANCY SERVICES by EMPLOYER by minimum of 60 (sixty) days and EMPLOYER shall be indicated as a beneficiary in the PERFORMANCE SECURITY.
- 14.6 EMPLOYER shall release the PERFORMANCE SECURITY within 60 (sixty) days after (i) the SERVICES under this CONTRACT are fully delivered and (ii) the last ACT OF ACCEPTANCE for the 3rd PHASE of CONSULTANCY SERVICES is issued, provided however that the fee associated with the bank confirmation of EMPLOYER REPRESENTATIVE signature and for the postal services is paid by the CONSULTANT.

#### Section 4 – CONTRACT

- 14.7 In case EMPLOYER recovers money from the PERFORMANCE SECURITY, *inter alia*, based on conditions set forth in Sub-Clauses 17.5 and Sub-Clause and 27.1.(c) of this CONTRACT, the CONSULTANT shall replenish the PERFORMANCE SECURITY to its original level (i.e. 10% of the CONTRACT PRICE) within 14 days therefrom.

#### **CLAUSE 15. TAXES**

- 15.1 For the purpose of this Clause 15, “tax” or “taxes” shall mean any tax (including all taxes and duties contemplated in Sub-Clause 15.5 of this CONTRACT), duty, levy, contribution, fee, charge and any penalty or interest thereon and any other costs and charges whatsoever assessed or imposed in accordance with the APPLICABLE LAW.
- 15.2 CONSULTANT, its SUBCONTRACTOR or their respective personnel, at their expense and without any effect on the CONTRACT PRICE, shall pay all “taxes” applicable to them and/or the SERVICES under the APPLICABLE LAW or any other law.
- 15.3 Notwithstanding anything to the contrary in this CONTRACT, no VAT shall be added on the CONTRACT PRICE, unless as of the EFFECTIVE DATE, CONSULTANT is registered as a VAT payer as per the APPLICABLE LAW.
- 15.4 Except as specifically provided for elsewhere in the CONTRACT, CONSULTANT warrants that in establishing CONTRACT PRICE, CONSULTANT has taken full account of all and any “taxes” for which it may be liable in relation to the CONTRACT and the SERVICES performed hereunder during the course of the CONTRACT.
- 15.5 CONSULTANT shall be responsible, at its expense and on its name, for importing to the territory of Georgia all equipment, hardware and software and any other materials, and supplies required for the performance of or in relation to the SERVICES under the CONTRACT.

#### **CLAUSE 16. CONSULTANTS NOT TO BENEFIT FROM COMMISSIONS, DISCOUNTS, ETC.**

- 16.1 The payment to the CONSULTANT pursuant to Clause 12 shall constitute the CONSULTANT’S only payment in connection with this CONTRACT or the SERVICES, and CONSULTANT shall not accept for its own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this CONTRACT or to the SERVICES or in the discharge of their obligations under the CONTRACT, and CONSULTANT shall use their best efforts to ensure that the PERSONNEL, any SUBCONTRACTOR, and agents of either of them similarly shall not receive any such additional payment.

#### **CLAUSE 17. WARRANTIES AND DEFECTIVE PERFORMANCE**

- 17.1 Except as otherwise specified in the CONTRACT, the CONSULTANT warrants that the CONTRACT PRICE set out in Sub-Clause 12.1, takes full account of all and any taxes for which it may be or become liable as a result of the SERVICES.
- 17.2 The CONSULTANT warrants it shall exercise all reasonable skill, care and diligence in the provision of the SERVICES in the competent and workmanlike manner, that the SERVICES shall at all times be performed in accordance with the best international standards and practices and meet the requirements stated in the CONTRACT in every respect.
- 17.3 CONSULTANT represents and warrants that all data, information, documents, equipment, material, supplies and processes provided or used by it in the performance of the SERVICES, is the rightful property of CONSULTANT, and/or that CONSULTANT has the full right to supply such items to EMPLOYER and or the right to use them in the performance of the SERVICES.
- 17.4 If EMPLOYER discovers within the SERVICE PERIOD that the SERVICES or any part of the SERVICES provided by CONSULTANT does not conform to the foregoing requirements or warranties, CONSULTANT shall at its own expense, after receipt of notice from EMPLOYER, promptly perform

#### Section 4 – CONTRACT

any and all corrective actions and/or work(s) (collectively the “REMEDIAL WORKS”) required to make the SERVICES conform to the said requirements.

- 17.5 Should CONSULTANT fail to remedy or refuse or fail to prove to EMPLOYER’S reasonable satisfaction that it has taken measures to remedy the matters so specified, as set forth in the CONTRACT, within a period of not more than 14 (fourteen) days, the EMPLOYER shall have the sole discretionary rights to terminate the CONTRACT in accordance with Clause 22 and charge the cost thereof to CONSULTANT and recover the expenses related to such REMEDIAL WORKS from the PERFORMANCE SECURITY and/or the ADVANCE PAYMENT GUARANTEE.
- 17.6 Notwithstanding anything to the contrary in this CONTRACT:
- (a) the EMPLOYER’S rights as set forth in Clause 17.5 shall be in addition to any other rights and/or remedies set forth in the APPLICABLE LAW and/or the CONTRACT.
  - (b) nothing in this CONTRACT shall be construed as modifying or limiting any express or implied rights, which EMPLOYER may have under the APPLICABLE LAW and/or the CONTRACT.
- 17.7 The CONSULTANT shall ensure that similar warranty undertakings extended also to its SUBCONTRACTORS, as applicable in respect of the SERVICES.

#### **CLAUSE 18. ASSIGNMENT AND SUBCONTRACTING**

- 18.1 CONSULTANT shall not assign the CONTRACT to any other party or subcontract any element of the SERVICES without the EMPLOYER prior written approval.
- 18.2 Notwithstanding the terms of any SUBCONTRACT, CONSULTANT shall remain liable to the EMPLOYER for the full performance of all CONSULTANT obligations and duties under the CONTRACT and shall be accountable for the acts and omissions or default of all its SUBCONTRACTORS.
- 18.3 CONSULTANT shall furnish the EMPLOYER with certified true copies of formal letters defining the scope and extent of SUBCONTRACTS relevant to the CONTRACT (or appropriate elements thereof) duly signed by the CONSULTANT and the SUBCONTRACTOR, upon request.

#### **CLAUSE 19. CONSULTANT’S ACTIONS REQUIRING EMPLOYER’S PRIOR APPROVAL**

- 19.1 The CONSULTANT shall obtain EMPLOYER’S prior approval in writing before taking any of the following actions:
- (a) entering into a subcontract for the performance of any part of the SERVICES, beyond the subcontracting arrangements specifically named in the PROJECT EXECUTION PLAN;
  - (b) making material modification to the subcontracting arrangements named in the PROJECT EXECUTION PLAN implying changes in the grounds of the CONTRACT;
  - (c) replacing, modifying or adding to such members of the CONSULTANT PERSONNEL listed by name in EXHIBIT E and/or appointing such members of the CONSULTANT PERSONNEL not listed by name in EXHIBIT E, and
  - (d) any other actions requiring prior written approval of the EMPLOYER as per other provisions of this CONTRACT.

#### **CLAUSE 20. AMENDMENTS**

- 20.1 No amendments to this CONTRACT shall be valid except if the same are in writing and signed by a duly authorized representative of each of the PARTIES.
- 20.2 EMPLOYER reserves the right to issue written instructions to CONSULTANT at any time to make any variations of the SERVICES, which is within the capability and resources of CONSULTANT. CONSULTANT shall proceed immediately as instructed.

#### Section 4 – CONTRACT

- 20.3 Such instructions may concern to the increase or decrease in the scope of the SERVICES, or variation to schedule of activities associated with the SERVICES, all of which shall be valued in accordance with the rates and prices prevailing under the CONTRACT, or in the event that such are not expressly specified, at rates or prices calculated therefrom.
- 20.4 When EMPLOYER issues an instruction in relation to the SERVICE as above, CONSULTANT shall submit a written response to EMPLOYER without undue delay, detailing any impact on the SERVICES or the performance thereof including whether such instruction contradicts with the CONTRACT and/or the APPLICABLE LAW or whether it falls within the scope of Sub-Clause 12.3.8 together with details of any cost and or schedule impact and substantiation thereof.
- 20.5 Any additions or modifications to the rates or prices set out in EXHIBIT B shall be treated as AMENDMENTS requiring the written approval of both PARTIES' authorized representatives.
- 20.6 AMENDMENT to any of the terms and conditions set out in this CONTRACT will be formalized by a subsequent supplemental agreement in the form of an amendment to the CONTRACT within one 1 (one) month of the change(s) being notified and agreed by the PARTIES.
- 20.7 Notwithstanding the existence of any claim or any disagreement over variation instructions as per Sub-Clause 20.2 (other than where it conflicts with the provisions of Sub-Clause 20.2 in relation to the capability and resources of CONSULTANT or Sub-Clause 7.4(a) and Sub-Clause 12.3.8), CONSULTANT shall immediately proceed with such instructions from EMPLOYER and shall ensure that, in no event is the provision of the SERVICES interrupted or delayed.

#### **Clause 21. SUSPENSION OF SERVICES**

- 21.1 EMPLOYER may suspend this CONTRACT, in whole or in part, upon delivery of NOTICE to the CONSULTANT and the suspension shall become effective upon receipt of such NOTICE by the CONSULTANT.
- 21.2 Upon receipt of the NOTICE of suspension pursuant to this Sub-Clause 21.1, the CONSULTANT shall suspend all activity in respect of this CONTRACT (except as otherwise may be specifically stated in the notice of suspension), and such activity shall remain suspended until the suspension is lifted by written instruction from the EMPLOYER. CONSULTANT shall resume the SERVICES within 20 days after suspension is lifted by EMPLOYER as per Sub-Clause 21.2 and the NOTICE as per Sub-Clause 5.4 served to CONSULTANT.
- 21.3 EMPLOYER shall not use the right to suspend whole or part of the CONTRACT more than 4 (four) times (including consecutive suspensions) unless mutually agreed by the PARTIES. Period for each suspension shall not last more than 90 days.
- 21.4 Suspension of the CONTRACT as per Clause 21 shall have no effect on the CONTRACT PRICE.

#### **CLAUSE 22. TERMINATION**

##### **22.1 BY THE EMPLOYER**

- 22.1.1 The EMPLOYER may unilaterally terminate this CONTRACT by delivery of a termination NOTICE to the CONSULTANT, specifying the reason and effective date of termination if:
- a) CONSULTANT, in the judgment of the EMPLOYER, fails to perform its obligations under the CONTRACT and does not remedy such failure within 14 (fourteen) days after being notified or within any further period as the EMPLOYER may have subsequently approved in writing. However, EMPLOYER shall not be obliged to fix an additional period of time when it is evident that such a period will not yield any result;
  - b) CONSULTANT fails to deliver to the EMPLOYER a review report on the ED within the timeframe specified in the CONTRACT;
  - c) CONSULTANT becomes insolvent or bankrupt;

#### Section 4 – CONTRACT

- d) CONSULTANT, in the judgment of the EMPLOYER, has engaged in corrupt or fraudulent practices in competing for or in executing the CONTRACT;
- e) amount of the PENALTIES accrued and to be paid by CONSULTANT under provisions of this CONTRACT exceeds 5% of the CONTRACT PRICE;
- f) as a result of FORCE MAJEURE, CONSULTANT is unable to perform a material portion of the SERVICES for a continuous period in excess of thirty 30 (thirty) days;
- g) EMPLOYER, in its sole discretion and without cause, decides to terminate this CONTRACT.

22.1.2 In the event of termination of the CONTRACT under paragraphs “a” through “e” of Sub-Clause 22.1.1 above, any additional costs, expenses or damages incurred by EMPLOYER as a result of the occurrences set out in said paragraphs shall be a debt due and recoverable from CONSULTANT.

#### 22.2 BY THE CONSULTANT

22.2.1 The CONSULTANT may terminate this CONTRACT by delivery of a termination NOTICE to the EMPLOYER, specifying the reason and effective date of termination, if the EMPLOYER fails to pay any money due to the CONSULTANT pursuant to this CONTRACT within 30 (thirty) days after receiving written NOTICE from the CONSULTANT that such payment is overdue, unless such a non-payment is caused by breaching of the contractual obligation from the part of the CONSULTANT.

#### 22.3 PAYMENT UPON CERTAIN EVENTS OF TERMINATION

22.3.1 Upon termination of the CONTRACT pursuant to Sub-Clause 22.1.1.f, the EMPLOYER shall pay to the CONSULTANT the price for the SERVICES for which EMPLOYER has signed the ACT OF ACCEPTANCE up to the date of occurrence of FORCE MAJEURE.

22.3.2 Upon termination of the CONTRACT, the EMPLOYER shall pay to the CONSULTANT the price for the SERVICES for which EMPLOYER has signed the ACT OF ACCEPTANCE by the termination date, provided however that the PARTIES shall have no claims against each other for reimbursement of damages of any kind incurred as a result of such termination.

### **CLAUSE 23. CONFLICT OF INTERESTS, BUSINESS ETHICS AND ANTI BRIBERY/CORRUPTION**

23.1 CONSULTANT shall uphold the highest standards of business ethics in the performance of the CONTRACT. CONSULTANT shall ensure that all dealings with EMPLOYER and any THIRD PARTIES are at all times conducted in accordance with the highest principles of honesty, fairness and integrity and that the SERVICES performed with due diligence and care.

23.2 CONSULTANT shall at no time knowingly involve itself in any business in connection with, or use information arising from, the CONTRACT, in any manner which could result in a conflict with the interests of the EMPLOYER, and CONSULTANT shall exercise reasonable care and diligence to prevent any actions or conditions which could result in a conflict with the interests of the EMPLOYER.

23.3 CONSULTANT shall hold the EMPLOYER’S interests paramount, without any consideration for future work, and strictly avoid conflict with other assignments or their own corporate interests and shall comply with the FIDIC Code of Ethics during performance of SERVICES.

### **CLAUSE 24. CONFIDENTIALITY**

24.1 Except as expressly permitted by this CONTRACT, the CONSULTANT shall (i) protect, keep strictly confidential and not disclosed proprietary and/or commercially confidential information relating to the EMPLOYER and/or any part of the SERVICES obtained by the CONSULTANT in the course or conduct of the CONTRACT to any other person, firm or corporation other than the EMPLOYER’S

#### Section 4 – CONTRACT

designated representatives and/or consultants and (ii) not use such information for any purpose other than the performance of its obligation under this CONTRACT.

- 24.2 As an exception to the obligations set forth in the above Sub-Clause 24.1, the CONSULTANT shall be entitled to disclose such information: (i) with the prior written consent of the EMPLOYER, or (ii) on a need-to-know basis to CONSULTANT'S PERSONNEL, SUBCONTRACTORS and/or their personnel only upon obtaining an undertaking of strict confidentiality (explicitly for the benefit of, and enforceable by, each PARTY to this CONTRACT) from any such person; or (iii) to the extent such disclosure is validly required by any court of competent jurisdiction or governmental or regulatory authority or where there is a legal duty or requirement to disclose, provided that the CONSULTANT gives not less than 2 (two) BUSINESS DAYS' written notice of such disclosure to the EMPLOYER. In respect of any disclosure pursuant to this paragraph, the CONSULTANT shall keep the information disclosed to the minimum necessary for the purpose for which it is disclosed and in respect of subsection (iii) of the immediately preceding sentence, take all necessary actions permitted by any applicable law to prevent and/or minimize the further disclosure of such information.
- 24.3 CONSULTANT's obligations as to confidentiality under this Clause 24 shall subsist for the duration of the CONTRACT and for a further period of 5 (five) years from the date of expiry or earlier termination of the CONTRACT.

#### **CLAUSE 25. OWNERSHIP**

- 25.1 EMPLOYER shall retain title to all data and information, logs, records, plans, drawings, specifications, designs, technical information and other documents provided to CONSULTANT during the performance of SERVICES under this CONTRACT and all such items shall only be used by CONSULTANT for the performance of the SERVICES and returned to EMPLOYER immediately upon completion of the SERVICES or elements thereof, or upon termination or expiration of the CONTRACT, whichever is the earlier.
- 25.2 All DELIVERABLES provided by CONSULTANT shall immediately become the exclusive property of the EMPLOYER (subject to CONSULTANT'S right to payment for the SERVICES properly performed) and may be used by EMPLOYER for any purpose whatsoever. Any of such DELIVERABLES shall not be released, disclosed or used by CONSULTANT, other than for the purpose of the SERVICES, without the prior written approval of EMPLOYER and shall be handed over to EMPLOYER, together with a detailed inventory, immediately upon completion of the SERVICES or elements thereof, or upon termination or expiration of the CONTRACT, whichever is the earlier.
- 25.3 All data and information, logs, records, software, plans, drawings, specifications and similar documents furnished by CONSULTANT, which were in the possession of CONSULTANT prior to the date of the CONTRACT, or which were developed solely on the basis of proprietary concepts contained in these documents after such time, shall be the property of CONSULTANT. In such event, EMPLOYER shall have a right to use such documents free of charge in relation to the subject of the CONTRACT, the outcome of the SERVICES and its other associated operations.
- 25.4 The PARTIES shall ensure that all persons or entities having access to such items, documentation and information as mentioned above or any copies thereof, shall be made aware of and fully respect and comply with the provisions of this Clause 25.

#### **CLAUSE 26. LIABILITIES AND INDEMNITIES**

- 26.1 In addition of specific indemnity provisions set out in different provisions of the CONTRACT, the CONSULTANT shall indemnify and hold harmless the EMPLOYER against each and every liability which the EMPLOYER may incur to any other person whatsoever and against the adverse effects or all claims, including claims by THIRD PARTIES, to the extent that the same arise as a result of the

#### Section 4 – CONTRACT

CONSULTANT'S breach of the CONSULTANT'S obligations under the CONTRACT by negligence or wilful misconduct.

- 26.2 Except in case of gross negligence or wilful misconduct on the part of the CONSULTANT or on the part of any person or firm acting on behalf of the CONSULTANT in carrying out the SERVICES, the CONSULTANT, with respect to damage caused by CONSULTANT to the EMPLOYER'S property including the CCTPP PROJECT, shall not be liable to the EMPLOYER for any direct or indirect losses or damages exceeding the CONTRACT PRICE.
- 26.3 This limitation of liability shall not affect the CONSULTANT'S liability, if any, for damage to THIRD PARTIES caused by the CONSULTANT or any person or firm acting on behalf of the CONSULTANT in carrying out the SERVICES.

#### **CLAUSE 27. PENALTIES**

- 27.1 The PARTIES agree that if the CONSULTANT fails to perform the obligation set out in Paragraphs "a" through "c" below, the CONSULTANT shall be liable to pay to EMPLOYER the PENALTIES in accordance with the agreed rate, save to the extent that such failures arises as a result of (i) the FORCE MAJEURE; or (ii) event of suspension as per Clause 21:
- (a) If CONSULTANT delays or fails to deliver the SERVICES or any part of the SERVICES within the REVIEW PERIOD or any other period/time frame or deadline applicable to the performance of the SERVICES, the EMPLOYER shall, without formal notice and without prejudice to its other remedies available under the CONTRACT, be entitled to the PENALTY of 0.02% of the CONTRACT PRICE for each day of delay until the actual date of delivery of the respective SERVICES or termination of the CONTRACT by the EMPLOYER. The total amount of such PENALTY shall not exceed 5% of the CONTRACT PRICE.
  - (b) If CONSULTANT fails to replenish the ADVANCE PAYMENT GUARANTEE as per Sub-Clause 13.10, the CONSULTANT shall be liable to pay to the EMPLOYER the PENALTY of 0.1% of the amount of the respective replenishment for each day of delay subject to a maximum of 5% of the CONTRACT PRICE until performing such replenishment or termination of the CONTRACT by EMPLOYER.
  - (c) If CONSULTANT fails to replenish the PERFORMANCE SECURITY as per Sub-Clause 14.7, CONSULTANT shall be liable to pay to the EMPLOYER the PENALTY of 0.1% of the amount of the respective replenishment for each day of delay subject to a maximum of 5% of the CONTRACT PRICE until performing such replenishment or termination of the CONTRACT by the EMPLOYER.
- 27.2 EMPLOYER shall be at liberty to adjust, deduct or retain the said amounts of the PENALTIES as set forth in Sub-Clause 27.1 from any amount due to the CONSULTANT, PERFORMANCE SECURITY Bank Guarantee and/or the ADVANCE PAYMENT GUARANTEE.
- 27.3 Payment of the PENALTIES by the CONSULTANT shall not relieve it from its obligations to complete the SERVICES in accordance with the CONTRACT.

#### **CLAUSE 28. FORCE MAJEURE**

- 28.1 For the purposes of this CONTRACT, "Force Majeure" means an act, event or condition which:
- a) is beyond the reasonable control of a PARTY and is not the result of any act, omission or delay of the PARTY relying on such Force Majeure (or any third person over whom such PARTY has control, including any SUBCONTRACTOR);
  - b) such PARTY could not reasonably have avoided or overcome;



## Section 4 – CONTRACT

- c) makes such PARTY'S performance of some or all of its obligations under the CONTRACT impossible or so impractical as to be considered impossible under the circumstances.
- 28.2 The failure of a PARTY to fulfil any of its obligations under the CONTRACT shall not be considered to be a breach of, or default under, this CONTRACT insofar as such inability arises from an event of FORCE MAJEURE, provided that the Party affected by such an event:
  - a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this CONTRACT,
  - a) has notified the other PARTY in not more than three (3) days after occurrence of such FORCE MAJEURE event of the nature and extent of the circumstances in question together with all other relevant information.
  - b) continues to perform all of its obligations not impacted by such event of FORCE MAJEURE.
- 28.3 Any period within which a PARTY shall, pursuant to this CONTRACT, complete any action or task, shall be extended for a period equal to the time during which such PARTY was unable to perform such action as a result of FORCE MAJEURE.
- 28.4 If the FORCE MAJEURE in question prevails and causes the SERVICES to be halted for a continuous period in excess of 30 (thirty) days, the PARTIES shall enter into *bona fide* discussions with a view to alleviating its effects, or to agreeing upon such alternative arrangements as may be fair and reasonable, which alternative arrangements may include but not limited to suspension or termination of the CONTRACT.
- 28.5 Any agreement to suspend or terminate the CONTRACT shall not give rise to any claim for compensation from CONSULTANT whatsoever, other than for the SERVICES for which EMPLOYER has signed the ACT OF ACCEPTANCE.

## CLAUSE 29. GENERAL LEGAL PROVISIONS

### 29.1 GOVERNING LAW AND LANGUAGE

- 29.1.1 The CONTRACT shall be governed by and construed in accordance with APPLICABLE LAW. For the avoidance of any doubts, in case of conflict between this CONTRACT and imperative provisions of APPLICABLE LAW, the later shall prevail.
- 29.1.2 The ruling language of the CONTRACT shall be the English Language, which is binding and controlling language for all matters relating to the meaning or interpretation of this Contract.
- 29.1.3 In the event that any translation of this CONTRACT is prepared in any language other than English, such translation shall be for information only and shall not be binding upon the PARTIES in any respect.

### 29.2 WAIVER

- 29.2.1 None of the terms and conditions of the CONTRACT shall be considered to be waived by either EMPLOYER or CONSULTANT unless a written waiver is given by one PARTY to the other. No failure on the part of either PARTY to enforce any of the terms and conditions of the CONTRACT shall constitute a waiver of such terms.

### 29.3 VALIDITY/SEVERABILITY

- 29.3.1 If any provision of the CONTRACT is held by any court or administrative body of competent jurisdiction to be invalid or unenforceable in whole or in part, the validity or enforceability of the other provisions of the CONTRACT shall not be affected.

#### Section 4 – CONTRACT

29.3.2 EMPLOYER and CONSULTANT hereby agree to attempt to substitute, for any invalid or unenforceable provision, a valid or enforceable provision which achieves to the greatest possible extent, the economic, legal and commercial objectives of the invalid or unenforceable provision.

#### 29.4 SURVIVAL

29.4.1 All Clauses or Clauses providing for indemnity, taxes, confidentiality, insurance, exclusion or limitation of liability, dispute resolution, payment, and governing law shall survive after the completion or any termination of the CONTRACT.

#### 29.5 NOTICES AND CORRESPONDENCE

29.5.1 All instructions, notices, authorizations, approvals and acknowledgements issued in respect of the CONTRACT (all together "NOTICE") or CORRESPONDENCE between the PARTIES during execution of the SERVICES under the CONTRACT shall be given in writing, in English language, and delivered by hand, by E-mail or by first class registered courier post to the relevant personnel and address specified below and/or such other personnel and addresses as may be nominated and agreed in writing by the PARTIES from time to time. Nevertheless, if for any reason it is considered necessary by EMPLOYER to give an instruction to CONSULTANT orally in the first instance, CONSULTANT shall comply with such instruction. Any such oral instruction shall be confirmed in writing as soon as is possible under the circumstances, but no later than 24 (twenty-four) hours after issuing the oral exchange provided that, if CONSULTANT confirms any such oral instruction, which is not contradicted in writing by EMPLOYER without undue delay, it shall be deemed to be an instruction in writing from EMPLOYER.

29.5.2 Such NOTICE and CORRESPONDENCE shall be effective, (i) at the time of delivery, if delivered by hand, (ii) on the first working day at the recipient's address following the date of sending and provided that no transmission failure return receipt received on registered mail, if sent by E-mail; or (iii) on receipt, if sent by registered courier post to the personnel and/or address of PARTIES listed below:

EMPLOYER	Company Name:  Georgian Oil and Gas Corporation JSC
	Address:  Kakheti Highway N21, 0190, Tbilisi, Georgia
	For NOTICE:  e-mail: [•]  For CORRESPONDENCE:  [•]  e-mail: [•]
CONSULTANT:	Company Name:  [•]
	Address:  [•]

#### Section 4 – CONTRACT

	<p>For NOTICE:</p> <p>[•]</p> <p>e-mail: [•]</p> <p>For CORRESPONDENCE:</p> <p>[•]</p> <p>e-mail: [•]</p>
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29.5.3 A PARTY may change the personnel and/or address specified above for NOTICE hereunder by giving the other PARTY the NOTICE in writing of such change.

29.5.4 Any NOTICE or CORRESPONDENCE given to the personnel and/or address specified in Sub-Clause 29.5.2 shall be considered as given to either PARTY as appropriate.

#### **CLAUSE 30. SETTLEMENT OF DISPUTES**

##### 30.1 AMICABLE SETTLEMENT

30.1.1 The PARTIES agree that the avoidance or early resolution of disputes is crucial for a smooth execution of the CONTRACT. The PARTIES shall use their best efforts to settle amicably all disputes arising out of or in connection with the CONTRACT or its interpretation.

##### 30.2 DISPUTE RESOLUTION

30.2.1 Any dispute, controversy or claim arising out of or in connection with this CONTRACT, or the breach, termination or invalidity thereof, that cannot be settled amicably by the PARTIES within 30 (thirty) days of notification of such dispute, controversy or claim, shall be finally settled by Georgian Court in accordance to the APPLICABLE LAW.

**IN WITNESS WHEREOF**, the PARTIES hereto have caused their duly authorised representatives to execute the CONTRACT on the day(s) and year stated below:

For EMPLOYER

For CONSULTANT

Signature:

\_\_\_\_\_

Signature:

\_\_\_\_\_

Name:

[•]

\_\_\_\_\_

Name:

[•]

\_\_\_\_\_

Title:

[•]

\_\_\_\_\_

Title:

[•]

\_\_\_\_\_

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Date: [•], 20--

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Date: [•], 20--

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**EXHIBIT A - TERMS OF REFERENCE (TOR)****for****CONSULTANCY SERVICES****for Gardabani III – 272 MW Combined Cycle Thermal Power Plant (CCTPP)****1 INTRODUCTION**

- 1.1 The Turnkey/EPC CONTRACT regarding engineering, procurement and construction of Gardabani-III 272 MW Combined Cycle Thermal Power Plant (CCTPP) was signed on [●] by Georgian Oil and Gas Corporation JSC (“EMPLOYER”) and [●] Calik Enerji Sanayi Ve Ticaret ASJ (“CONTRACTOR”).
- 1.2 The EPC CONTRACT was accomplished based on the conditions for Turn-Key Engineering, Procurement and Construction Contracts issued by International Federation of Consulting Engineers (FIDIC) in the Silver Book of 1999.

#	Aspect	Response
	<b>Project Location</b>	
1	Gardabani, Georgia	Gardabani III - 272 MW CCTPP is located in the vicinity of the existing combined-cycle power plants - Gardabani 1 & Gardabani 2 (address: [●], Gardabani, Georgia), approx. 2 km west from the town Gardabani and approx. 40 km south-east from Tbilisi.
	<b>Project Status</b>	
2	New or existing	New Construction
3	Planned duration of CCTPP project	28 month after commencement of Works other than Engineering Works (EW) – as per EPC CONTRACT
4	Planned duration of Defect Notification Period	24 month after the Works other than EW are completed and certified under Taking-Over Certificate
	<b>Main Data</b>	
5	Type of the Plant	Combined Cycle Thermal Power Plant
6	Fuel type	Gas Fired
7	Number of Gas Turbines	2
8	Number of Steam Turbines	1
9	Number of Generators	3
10	Gas Turbine Starting Means	Electric Motor with Black Start diesel Generator; 1 Gas Turbine By-Pass Stack
	<b>Additional Information</b>	

## Section 4 – CONTRACT

12	Plant description, CCTPP PROJECT SCHEDULE, CONTRACTOR'S DOCUMENTS, split of obligation under EPC CONTRACT and Schedule of Meetings (sample).	For detail information, please refer to Annex 1 to 6 annexed to TOR hereto.
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## 2 SCOPE OF CONSULTANCY SERVICES

### 2.1 Overall Objective

2.1.1 The overall objective of the CONSULTANCY SERVICES is to Assist and advise EMPLOYER in administration of the EPC CONTRACT of CCTPP PROJECT to ensure timely and satisfactory completion of the works in accordance with the EPC CONTRACT and APPLICABLE LAW.

### 2.2 PROJECT EXECUTION PLAN

2.2.1 CONSULTANT shall prepare the PROJECT EXECUTION PLAN based on requirements and condition set forth in the CONTRACT and TOR, including but not limited to the following:

- (a) Organizational Chart
- (b) Scope of work, lines of authority, roles and responsibilities of CONSULTANT PERSONNEL involved in the provision of SERVICE
- (c) Work Plan and Schedule
- (d) Manpower allocation schedule – indicating also position title - with clearly defined site missions and office works
- (e) Details on methods for execution of SERVICES
- (f) QA/QC, HSE and Risk Management Plans
- (g) Document and Data Management and Control System proposed by CONSULTANT (including relevant training for EMPLOYER's personnel, as required), communication and other procedures – taking into account CONSULTANT's organization and the relation to EMPLOYER organization as well as other Third Parties involved;
- (h) Inspection program
- (i) Schedule of meetings and inspections during execution of the SERVICES – name/type of the meeting, content/subject/objective, participants (PERSONNEL/positions/disciplines), frequency, location and duration – together with relevant matrix for the meetings and inspections, summarising the above details. The samples of schedule of meetings and relevant matrix provided in Annex 5 of the TOR.
- (j) Reporting plan/schedule – including relevant forms and/or description of content for Monthly Progress Reports, Factory Inspection Reports and other deliverables indicated in EXHIBIT D, as appropriate.

2.2.2 The PROJECT EXECUTION PLAN shall be submitted for approval to EMPLOYER in accordance to Sub-Clauses 8.3-8.6 of the CONTRACT.

### 2.3 Documents Review and Approval

2.3.1 CONTRACTOR will submit the CONTRACTOR'S DOCUMENTS by parts or fully at once. CONSULTANT will have to review them and return within REVIEW PERIOD defined under this CONTRACT. CONSULTANT shall make every effort to make the review in a shorter time than 11 (eleven) business days, particularly in the event that CONTRACTOR highlights where specific documents are critical for urgent review. In any case where the Contractor resubmits the Contractor's Document for the Employer to review, the Employer shall review the Contractor's Document in 5 (five) business Days.

2.3.2 CONSULTANT will have to review CONTRACTOR'S DOCUMENTS and return - either with "no comments" (STATUS "A") or "minor comments" (STATUS "B") which do not require resubmission, or "specific comments" (STATUS "C"), where the design is not in accordance with the EPC CONTRACT or there are some other major inconsistencies - based on below listed Status Definitions. Where

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CONSULTANT has such specific comments, it should be ensured that CONTRACTOR returns his revised Design Documents for further comments within agreed time frames as defined in EPC CONTRACT.

### STATUS DEFINITIONS:

- **“A”** – Accepted for construction;
  - **“B”** – Accepted for construction with comments. Construction conforming to the comments can commence, however, the drawing/specification/notes must be revised in accordance with the comments and reissued for acceptance;
  - **“C”** – Not accepted with comments, resubmission of documents required with a new submittal number.
- 2.3.3 Comments may be provided to CONTRACTOR by email with comments listed or by marked up drawing with accompanying cover-note. The Cover-Note shall state that the CONTRACTOR’S DOCUMENTS complies with the EPC CONTRACT, or the extent to which it does not comply.
- 2.3.4 CONSULTANT shall establish and maintain through the execution of CONSULTANCY SERVICES sound Document and Data Management and Control System to register, track and trace the documents and transmittals, review results, status and validation of comments and reports and other documents submitted by CONSULTANT or EPC CONTRACTOR and provide to EMPLOYER’S PERSONAL with relevant training and access to the system.
- 2.3.5 CONSULTANT shall provide Expertise - final expert appraisal/approval by licensed experts and/or specialists qualified in relevant technical fields/disciplines and registered at relevant state authorities of Georgia - on ED and Detailed Design documents (other than ED) reviewed by CONSULTANT. The expert appraisal/approval by licensed experts and/or specialists is required for submission of Design Documents or any part thereof to the relevant Georgian Authority for obtaining or as a part of Construction Permit.
- 2.3.6 Apart from regular Weekly, Monthly and/or Quarterly Meetings, during the 2nd and 3rd PHASES of CONSULTANCY SERVICES, CONSULTANT shall consider minimum number of design and progress review meetings during review of ED and other detailed design works as specified in EXHIBIT B of the CONTRACT.
- 2.3.7 CONSULTANT, together with EMPLOYER and CONTRACTOR, shall approve each completed phase of the construction of CCTPP PROJECT (as defined in the Construction Permit from Relevant Authorities) by signing of the relevant Act on Completion of Construction Phase. The Act shall be signed by licensed experts and/or specialists qualified in relevant technical fields/disciplines and registered at relevant state authorities of Georgia.

## **3 1st PHASE of CONSULTANCY SERVICES – main activity: Review Services for Engineering Design (ED)**

- 3.1 CONSULTANT’S responsibilities shall include review and approval of the CONTRACTOR’S Engineering Design (ED) documents - basic concepts, design criteria, design procedures, process flow, electrical P&I diagrams, drawings and any other documents submitted by CONTRACTOR as a part of ED - to ensure that the subsequent detailed engineering, procurement and construction of CCTPP PROJECT will meet the contractual and all other requirements that are defined under EPC CONTRACT and APPLICABLE LAW, with regard to:
- (a) Scope of work
  - (b) Technical requirements
  - (c) Compliance to Norms, construction standard and norms;
  - (d) Compliance with environmental and other statutory requirements
  - (e) Safety, reliability, operability and maintainability criteria
  - (f) Overall compliance with sound, established engineering practice
- 3.2 CONSULTANT shall provide to the EMPLOYER:
- (a) Review Finding Report to the EPC Contract - summarizing the findings and comments to the EPC Contract terms and conditions.
  - (b) Expertise on Engineering Design (ED) documents - as set forth in Paragraph 2.3.5 of EXHIBIT A of the CONTRACT.

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- (c) Review Report on Vendor List for major equipment and/or components of CCTPP Plant (if applicable) - to be proposed by CONTRACTOR and approved by EMPLOYER.

### 3.3 CONSULTANT shall review and comment on the following procedures and/or guidelines submitted by CONTRACTOR:

- (a) Communication Procedure,
- (b) Document Review & Approval Procedure,
- (c) Document Format & Numbering Procedure
- (d) KKS Coding Guideline
- (e) Any other documents, procedures or guidelines submitted by CONTRACTOR during the 1st PHASE of CONSULTANCY SERVICES.

## 4 2nd PHASE of CONSULTANCY SERVICES – main activities: Review Services for other works than ED, Quality Assurance Plans and Procedures; Supervision and Project Management Services.

### 4.1 Review of Design Documents for Works other than the EW under EPC Contract

CONSULTANT shall review all Design Documents for Works other than ED, documents in regards to optimization of scope of supply and interfaces. These may include but not limited to proposed work programs, construction methods, layouts of construction plant & facilities, as built drawings, construction equipment, and other documents related to construction.

CONSULTANT will be in charge of technical recalculation of any document in case there will be such background found out by the EMPLOYER'S or the CONSULTANT'S engineers.

### 4.2 Review of Quality Assurance Plan and Procedures, Guidelines and Manuals submitted by CONTRACTOR

The scope of work shall cover the following tasks related to quality assurance aspects of the project:

- (a) Review and approval of CONTRACTOR'S vendors (or SUBCONTRACTOR'S) QA and QC Plans, including customer hold points for inspection;
- (b) Review and approval of factory and performance test procedures for all major equipment and systems at construction SITE of CCTPP PROJECT;
- (c) Review of the EPC CONTRACTOR'S Project Quality Plan, Inspection and Test Plans (ITP) and Procedures.

### 4.3 Supervision and Project Management Services

CONSULTANT shall act as the EMPLOYER'S Representative under EPC CONTRACT and provide all related services as prescribed thereby.

CONSULTANT shall provide full time supervision at construction SITE of CCTPP PROJECT, involving specialists according to ongoing site activities. To ensure the full-time supervision under this Sub-Clause, the CONSULTANT shall be required to be deploying and keeping at least 2 (two) CONSULTANT PERSONNEL at the construction SITE within working hours even on Saturdays, Sundays and national holidays in Georgia (unless site activities are completely suspended for any reason). Such uninterrupted and continuous presence shall be attained on equal rotational basis to the greatest extent possible. This is without prejudice to the CONSULTANT's general obligation to witness all-important actions at construction SITE of CCTPP PROJECT during construction, erection, commissioning, troubleshooting and take-over processes, will it be technical, organizational or financial issues and irrespective of being conducted within ordinary working hours or not.

The CONSULTANT shall ensure that PERSONNEL (SITE team) who are necessary for performing respective CONSULTANCY SERVICES are fully mobilized at SITE within maximum 2 (two) months upon respective NOTICE.



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### 4.3.1 Project Management Services

CONSULTANT shall:

- a) Assist EMPLOYER in regards of project management in order to secure coordination of all activities and to achieve a targeted project completion date;
- b) Supervise all EPC CONTRACTOR'S activity to achieve appropriate plant quality; plant performance and overall project economic;
- c) Mitigate technical and commercial risks during implementation phase and later during plant operation;
- d) Assist EMPLOYER in regards to the project financial controlling in order to keep the investment budget within the agreed EPC CONTRACT price;
- e) Assist EMPLOYER in regards of all technical, commercial and legal claims related to the EPC CONTRACT (including punch list maintaining and monitoring);
- f) Review and approve the CCTPP PROJECT schedules and detailed construction program; provide time scheduling surveillance throughout the engineering, procurement and construction phases of CCTPP PROJECT;
- g) Inform EMPLOYER of any problems or potential problems which may arise in connection with the CCTPP PROJECT implementation and provide recommendations on possible solutions;
- h) Monitor actual progress and advise EMPLOYER accordingly. Prepare weekly and monthly Progress Reports;
- i) Conduct regular (weekly) project coordination meetings.

### 4.3.2 Construction SITE Management Services

CONSULTANT shall provide a team of appropriately experienced engineers and others, to be based on construction SITE of CCTPP PROJECT.

Subject to the conditions and limitations of EPC CONTRACT, the duties shall include:

- a) Supervision of EPC CONTRACTOR'S administration of construction, erection, testing and commissioning of plant, equipment and facilities;
- b) Review of construction schedules and monitor CCTPP PROJECT construction SITE activities with respect to the latest approved schedule;
- c) Advise EMPLOYER regarding the adequacy (or otherwise) of the CONTRACTOR'S equipment, plant and labor resources;
- d) Provide advice to EMPLOYER regarding any technical problems encountered at construction SITE;
- e) Review EPC CONTRACTOR'S proposals for any corrective actions to be taken, in the event that works are not in accordance with approved designs and specifications;
- f) Monitor CONTRACTOR'S implementation of his Health Safety and Environment, and Quality Assurance Plans;
- g) Monitor technical anomalies (if any) and take part in troubleshooting;
- h) Monitoring of the fulfillment of the EIA environmental requirements during the construction period;
- i) Review of all relevant documents submitted by CONTRACTOR under EPC CONTRACT during the construction phase of CCTPP PROJECT;
- j) Preparation of punch lists and ensuring rectification of punch list content;
- k) Preparation of a final project completion report.

The site team of CONSULTANT shall be present at SITE throughout the construction phase of the CCTPP PROJECT.

### 4.3.3 Financial and Claim Management

CONSULTANT'S scope of work shall include:

## Section 4 – CONTRACT

- a) Advise to EMPLOYER on amendments to the Payments Schedule, as may be defined under the EPC CONTRACT, to ensure adequate payments to CONTRACTOR in compliance to CCTPP PROJECT implementation schedule;
- b) Check of the Payment documents received from CONTRACTOR;
- c) Control of project cash flow disbursements;
- d) Maintain an up-to-date financial record of all payments and projected costs and include in monthly, quarterly and final reports and in other appropriate reports;
- e) Preparation of the documents related to the penalties in case of CONTRACTOR'S failure;
- f) Verify the EPC CONTRACTOR'S invoices for payment;
- g) Assist EMPLOYER in identification and procurement of goods, works and services excluded from the CONTRACTOR'S scope of works;
- h) Support to EMPLOYER for resolving all commercial and legal issues;
- i) Maintain claim management - consequently conduct claim's activities in accordance the provisions of EPC CONTRACT and normal praxis in order to protect interest of the EMPLOYER.

### 4.3.4 Inspection and Testing Services

CONSULTANT shall consider the minimum number of factory inspection visits for quality surveillance at various locations as provided in EXHIBIT B of the CONTRACT.

CONSULTANT shall witness, and report on, testing of plant and equipment, at construction SITE of CCTPP PROJECT.

### 4.3.5 Plant Takeover Services

The CONSULTANT'S scope of work shall include:

- a) Review and Approval of Inspection and Test Plan (ITP) and Test Procedures - to be submitted by CONTRACTOR;
- b) Witnessing performance testing of the plant, to be conducted by CONTRACTOR, prior to take-over;
- c) Provide assistance to EMPLOYER in interpretation and acceptance of test results;
- d) Preparation of lists of any defects to be rectified by the CONTRACTOR, prior to Performance Test and issuing of Taking-Over Certificate.
- e) After completion of Performance Test, the Reliability Run will be performed. The relevant personnel of the Consultant shall be present and witness the overall test procedure.
- f) Review and Comment on start-up and Commissioning Spare Parts List – spare parts to be provided by EPC CONTRACTOR during start-up and commissioning of the CCTPP till take over.
- g) Review and Comment on Spare Parts Lists and Recommended Major and Minor Routine Maintenance (for 2 year operation period) - to be submitted by CONTRACTOR.

## **5 3rd PHASE of CONSULTANCY SERVICES – main activity: Supervision during Defect Notification Period**

- 5.1 The CONSULTANT'S scope of work shall include relevant services during 24 (twenty-four) months of the 3rd PHASE of CONSULTANCY SERVICES related to Defects Notification Period as prescribed under EPC CONTRACT.
- 5.2 The dedicated person from site team of CONSULTANT shall be continuously present at the construction SITE and make periodic inspections of equipment and checking operations of the CCTPP throughout the first 6 (six) months of the aforementioned period. Quarterly visits of CONSULTANTS PERSONNEL will be required during the remaining 18 (eighteen) months of Defects Notification Period to make periodic inspection works, monitor and report on the status of remedying defects by the CONTRACTOR. CONSULTANT shall make available qualified engineering PERSONNEL, Senior Experts or Discipline Leads during such periodic inspections.
- 5.3 CONSULTANT'S scope of work shall include:
  - a) Review and Comment on O&M Manuals – to be submitted by CONTRACTOR;
  - b) Review and Comment on As Built Drawings – to be submitted by CONTRACTOR;
  - c) Review and comment on a Program of Operators Training – training to be conducted by CONTRACTOR;

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- d) Provide Monthly Status and Quarterly Reports on Remedying Defects to EMPLOYER for review and approval.

### 6 Consultant's Personnel

The Consultant shall employ suitably qualified professionals who shall be competent to carry out any/or all of the duties in accordance with the responsibilities and/or authorities that are specified in this TOR and the CONTRACT. The key personnel are required also to demonstrate fluency in English.

Position	Experience in the relevant field (At least years)	Similar positions in Power Plant projects (At least years)	Education/Certification
Project Director/Manager	10	5	M.Sc. & MBA
Quality control and compliance director	10	5	M.Sc. in an Engineering discipline
Expediting and Financial Controller	10	5	MBA or M.Sc.
Mechanical Engineers (GT; ST; HRSG; WSC; etc.)	10	5	M.Sc. in an Engineering discipline
Electrical Engineer	10	5	M.Sc. in a Power Engineering
Civil Engineer	10	5	M.Sc. in a Civil Engineering
Commissioning Engineer	10	5	M.Sc. in a Power Engineering
I&C Engineer	10	5	M.Sc. in Electrical or Control Systems Engineering
Fire protection engineer	10	5	BSc. or Higher/ NFPA or CFPA
Other key long term experts	10	5	M.Sc. or MBA
Other technical staff	7	3	BSc. or BBA

EMPLOYER retains the right to:

- refuse any employee of the CONSULTANT and request replacement in case the candidate will be considered as not qualified to fulfill the CONSULTANT's obligations;
- to check the work of the Consultant's staff anytime, without prior notice.

CONSULTANT shall propose specific positions and manpower required to cover scope of CONSULTANCY SERVICES under this TOR.

**7 Office Facility**

EMPLOYER will provide CONSULTANT PERSONNEL office space near the construction SITE of CCTPP PROJECT with appropriate conditions to work and hold meetings. CONSULTANT'S PERSONNEL shall attend meetings at EMPLOYER'S office according to EMPLOYER'S request.

To organize the document exchange process, CONSULTANT is required to establish Document Control Center (DCC).

### **Annex 1 - TECHNICAL DESCRIPTION OF Gardabani-III 272 MW CCTPP**

The power plant shall consist of one (1) combined cycle block in a 2-2-1 configuration having two (2) Gas Turbine Generators (GTG) + two (2) Heat Recovery Steam Generators (HRSG) + one (1) Steam Turbine Generator (STG). Gas Turbine Generators and HRSG installations shall be located externally; Steam Turbine Generator installation shall be internal. The designed Plant life shall be at least 25 years. The fuel for the power plant shall be natural gas and no HRSG supplementary firing. A DN 500 pipeline will supply the plant with natural gas. The gas temperature in the territory of Gardabani varies from 0 °C to +30 °C and existing natural gas pipeline pressure varies between 9 to 18.5 bar, although in the future it may become possible to provide gas pressure up to 54 bar, thus project design and equipment has to be chosen accordingly. The Project also shall comprise closed loop cooling water system using an Induced Draught Cooling Tower. The cold circulation water from the circulating water pump house shall lead to the steam turbine condenser (for the condensation of the exhaust steam and thus acting as the heat sink for the power cycle) and the secondary side of the unit auxiliary plate heat exchanger (for cooling the passivated demineralized water in the primary side of the heat exchanger). The Power generated by GTGs and STG will be transmitted at a level of 500 kV. For this purpose, all generators shall be connected to the 500 kV switchyard via dedicated Generator step-up transformers and an overhead conductor. The 500 kV switchyard will be connected to the existing 500 kV switchyard through aerial/underground transmission lines which shall be installed by the Contractor.

#### **1.1 TECHNICAL DESCRIPTION OF PLANT**

The proposal shall be relevant to “Engineering-Procurement and Construction (EPC)” of the Gardabani 3 Combined Cycle Thermal Power Plant Project in Gardabani Site, Georgia.

#### **1.2 PROJECT DESCRIPTION**

Fuel: Natural Gas

2 Gas Turbines: OM General Electric, Type 6F.03, Axial Exhaust, 2 Gas

Turbine Generators: Brushless, 50 Hz,

Gas Turbine Starting Means: Electrical Motor with Black Start Generators, 1 Gas Turbine

By-Pass Stack,

Heat Recovery Steam Generator: 2 Pressure system, Non-Reheat, Unfired, Natural Circulation,

Steam Turbine: Condensing, Single Flow;

Steam Turbine Exhaust: Axial Exhaust,

Steam Turbine Generator: Static or Brushless, 50 Hz,

Main Cooling System: Closed loop cooling water system using an Induced Draught Cooling Tower,

Demineralized Water System: Demineralized Water System shall be constructed, Emergency Diesel Generator

500 kV Switchyard Firefighting System

Gas Turbine Compressor Cleaning: Off/On-line Compressor Water Wash

Plant Control Philosophy: Automatic Start-up & Shutdown, Auto/Manual Control Remote Dispatching

Gas Turbine-Generator Enclosure: Outdoor with Acoustic Enclosure Steam

Turbine-Generator Enclosure: Indoor

HRSG: Outdoor

**2 ESTIMATED PERFORMANCE**

<i>Measurement</i>	<i>Unit</i>	<i>Value</i>
<b>Performance of GT</b>		
Gross Electrical Output at Generator Terminal of GTs	[kW]	175 200
<b>Performance of ST</b>		
Gross Electrical Output at Generator terminal of ST	[kW]	100 900
<b>Performance of Combined Cycle (ISO Conditions and Special configuration)</b>		
Gross Power	[kW]	276 100
Auxiliary Consumption	[kW]	4 100
Net Power	[kW]	272 000
Plant Net Efficiency	%	57.4

Note: Actual Gross Output, Actual Auxiliary Consumption, actual Net Output and Actual Plant Efficiency may change

Plant Net Efficiency considering actual configuration of plant should be no less than 55%

Actual test Values with conjunction of ISO Conditions variation and plant actual configuration, should be confirmed by relevant calculations.

## 272 MW Gardabani III Combined Cycle Power Plant Project Schedule

ID	Task Name	Duration	Start	Finish	2021				2022				2023					
					Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4		
1	EPC contract effectiveness	0 days	04.01.21	04.01.21	<div>◆ EPC contract effectiveness</div> <div>◆ Engineering Design submit to employer</div> <div>◆ Start of CCTPP Construction</div> <div>◆ EPC civil foundation excavation</div> <div>◆ Cooling water station</div> <div>◆ NG Compressor Station</div> <div>◆ Closed Cooling Water System</div> <div>◆ HRSg steel structure erection start</div> <div>◆ Switchyard Energize available connection to the national grid</div> <div>◆ Placing of ST pedestals</div> <div>◆ LV Substation Energize available</div> <div>◆ Air compressor commissioning completion</div> <div>◆ RW station commissioning completion</div> <div>◆ DW station commissioning completion</div> <div>◆ 2# HRSg Boiler Hydro Test completion</div> <div>◆ 1# GT oil circulation completion</div> <div>◆ 2# GT oil circulation completion</div> <div>◆ ST oil circulation completion</div> <div>◆ 2# HRSg chemical cleaning completion</div> <div>◆ 1# GT first fire</div> <div>◆ 1# GTG connection to the national Grid</div> <div>◆ HRSg steam blowing and restoration</div> <div>◆ 2# GTG connection to the national Grid</div> <div>◆ ST hot rolling</div> <div>◆ STG connection to the national Grid</div> <div>◆ Reliability test completion</div> <div>◆ COD/TAC</div>													
2	Engineering Design submit to employer	0 days	03.04.21	03.04.21														
3	Start of CCTPP Construction	0 days	30.07.21	30.07.21														
4	EPC civil foundation excavation	0 days	18.09.21	18.09.21														
5	Cooling water station	0 days	16.01.22	16.01.22														
6	NG Compressor Station	0 days	02.03.22	02.03.22														
7	Closed Cooling Water System	0 days	20.06.22	20.06.22														
8	HRSg steel structure erection start	0 days	14.07.22	14.07.22														
9	Switchyard Energize available connection to the national grid	0 days	13.02.23	13.02.23														
10	Placing of ST pedestals	0 days	29.01.23	29.01.23														
11	LV Substation Energize available	0 days	26.03.23	26.03.23														
12	Air compressor commissioning completion	0 days	01.04.23	01.04.23														
13	RW station commissioning completion	0 days	17.04.23	17.04.23														
14	DW station commissioning completion	0 days	07.05.23	07.05.23														
15	2# HRSg Boiler Hydro Test completion	0 days	10.05.23	10.05.23														
16	1# GT oil circulation completion	0 days	27.06.23	27.06.23														
17	2# GT oil circulation completion	0 days	17.07.23	17.07.23														
18	ST oil circulation completion	0 days	31.07.23	31.07.23														
19	2# HRSg chemical cleaning completion	0 days	14.07.23	14.07.23														
20	1# GT first fire	0 days	31.07.23	31.07.23														
21	1# GTG connection to the national Grid	0 days	12.08.23	12.08.23														
22	HRSg steam blowing and restoration	0 days	25.08.23	25.08.23														
23	2# GTG connection to the national Grid	0 days	16.09.23	16.09.23														
24	ST hot rolling	0 days	30.09.23	30.09.23														
25	STG connection to the national Grid	0 days	07.10.23	07.10.23														
26	Reliability test completion	0 days	23.11.23	23.11.23														
27	COD/TAC	0 days	30.11.23	30.11.23														

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### Annex 3 – CONTRACTOR’S DOCUMENTS

The preliminary list of CONTRACTOR’S DOCUMENTS provided in below table presents the main categories of documentation to be submitted by CONTRACTOR for review and/or approval by EMPLOYER. The submittal time is conditional and subject to change.

<b>Document List</b>	<b>Submittal Time from the Contract sign date. (Mentioned submittal times are for 1st Version/Issue of the Document)</b>
Engineering Deliverable List <b>(For Review)</b>	30 days – Preliminary 90 days – Final
Project Level 2 Schedule <b>(For Approval)</b>	60 days
Project Level 3 Schedule <b>(For Review)</b>	2 months look ahead Level 3 Schedule to be submitted with monthly reports.
Design Drawings & Calculations <b>(For Approval)</b>	Progressively
General Layout – Plot Plan <b>(For Approval)</b>	15 days
Electrical Single Line Diagram <b>(For Approval)</b>	30 days
Flow Diagrams <b>(For Approval)</b>	75 days
P&IDs <b>(For Approval)</b>	90 days
Materials Specification’s <b>(For Approval)</b>	Progressively
Plant Major Equipment Specifications <b>(For Review)</b>	20 days prior to order
Controls and DCS Architecture <b>(For Approval)</b>	Progressively
Building Architecture <b>(For Approval)</b>	Progressively
Building Standards and Codes to be used <b>(For Approval)</b>	Progressively
Detailed Layouts and Arrangement Drawings <b>(For Approval)</b>	Progressively
Wiring Diagrams <b>(For Approval)</b>	Progressively
Monthly Progress Report <b>(For Review)</b>	Progressively
Vendor List (Final vendor list is required in order to enable the Employer to purchase spares.) <b>(For Review)</b>	Progressively
Construction Procedures <b>(For Approval)</b>	Progressively
Project Management Plans (HS, ENV, Waste Management, QA/QC, Pre-commissioning & commissioning) <b>(For Approval)</b>	Prior to commencement of the construction.
Project Quality Plan <b>(For Approval)</b>	60 days
Detailed ITPs & Test Procedures <b>(For Approval)</b>	30 days prior draft procedures, 15 days prior final procedures prior to commencement of the related tests and activities
List of consumables and spare parts for operation purposes <b>(For Review)</b>	No later than 12 months before completion of construction
Commissioning and Testing Schedule incl. firm amounts of natural gas required <b>(For Review)</b>	6 months prior to commissioning
As Built Drawings <b>(For Review)</b>	Within 30 days after Take Over



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<p>O&amp;M Manuals <b><u>(For Approval)</u></b></p> <p>The final issue of the-Operation &amp; Maintenance Manuals (specific to the as built Gardabani 3 power plant) reviewed by the Employer and the Employer's Representative in 5(five) printed copies and 1 (one) electronic file (CD).</p>	<p>No later than 42 days from submission of Taking-Over Certificate</p>
<p>O&amp;M Manufacturers Manuals <b><u>(For Review)</u></b></p> <p>For each Plant equipment delivered on site.</p>	<p>No later than 14 days from delivery on site</p>

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### Annex 4 – SPLIT OF OBLIGATIONS UNDER EPC CONTRACT

CONTRACTOR'S and EMPLOYER'S general scope of services & supply and responsibilities are defined in the following matrix.

No.	Task	Responsible		Remarks
		Contractor	Employer	
1	SCOPE OF SERVICES			
1.1	PROJECT MANAGEMENT	√		
	Periodic Scheduling Reports	√		
	Engineering and Design	√		
	Procurement	√		
	Manufacture & Fabrication	√		
	Marine Transportation, Unloading, Storage	√		Port of Poti or Batumi
	Inland Transportation	√		
	Customs Clearance	√	√	The contractor shall provide all necessary documents.
	O&M Manuals	√		Including the equipment specification from manufacturer. Shall be translated to Georgian language and submitted to employer
	As Built Drawings	√		
	Training	√		Shall be conducted by Vendors/Manufacturers certified and qualified personnel
	Warranty	√		24 (twenty-four) months from the Taking-Over Date.
1.2	FINANCIAL SERVICES			
	Performance Bond	√		10% of the total Contract price
	Advance Payment Bond	√		15% of the total Contract price
	Warranty Bond	√		5% of the total Contract price
	Financing		√	
1.3	TAXES	√	√	

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1.4	INSURANCE			
	Marine & Transport Insurance	√		
	Erection All Risk Insurance	√		
	Third Party Liability Insurance	√		
	Workmanship Compensation Insurance for the Contractor's personnel	√		
1.5	SITE SERVICES			
	Site Management	√		
	Supporting the Contractor in Interfacing and Coordination with Permit Authorities		√	
	Temporary Land for Mobilization, Lay Down, Storage and Camp Area	√	√	Employer will provide sufficient area nearby the territory of the Power Plant Area at no cost to the Contractor. Contractor, also shall obtain the permit for camp construction.
	Temporary Works and Facilities	√		
	Services and Facilities for the Employer and the Employer's Representative for temporary use during construction (office space approx. 150 sq.m (10 rooms), including meeting room). Also, utilities, internet, restroom & portable water shall be provided.	√		
	Studies and Calculations Required to Integrate the Power Plant into the Transmission System.		√	Including but not limited to load flow, insulation and protective device coordination studies outside the plant boundary
1.6	CONSTRUCTION, ERECTION, AND PRE-COMMISSIONING.			
	Construction & Erection of the Equipment within the Contractor's Scope of Supply	√		
	Construction Management	√		
	Construction Labor	√		
	Vendor Technical supervisory Support	√		
	Construction Potable Water	√		
	Construction Water	√		
	Construction Power	√		
	Construction Standard Tools & Equipment	√		
	Construction Special Tools & Equipment	√		
	Testing and Pre-commissioning	√		
	Work Permit for Expatriate Labor/Technician	√	√	The Employer will assist in obtaining necessary permits and visas. The cost of work permits and visas will be borne by the Contractor.

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1.7	CONSTRUCTION QUALITY CONTROL			
	Statutory Third-Party Authority Inspections	√		As required by standard and codes.
	Quality Assurance Plans, Procedures, Programs, Audits, and Reports	√		
1.8	TESTING, COMMISSIONING AND START-UP			
	Management	√		
	Fuel		√	The Employer is responsible for NG cost.
	Water	√		RAW, DM and etc.
	Electrical Power for Start-up and Commissioning	√		
	Electrical Load for Start-up and Commissioning	√		
	Start-up and Commissioning Consumables	√		
	Procedures	√		
	Vendor Technical Advisory Support	√		
	Standard and Special Test Instruments, Tools and Equipment	√		
	System Walk down and Turnover	√		
	Equipment Commissioning	√		
	Start-up and Commissioning Spares	√		
	Punch List Administration	√		
	Care and Custody of the Plant up to the Provisional Acceptance Date	√		
	Equipment Function Test and Pre-commissioning	√		
	Operation & Maintenance of the Plant up to the contractually agreed Provisional Acceptance Date	√		
1.9	PERFORMANCE TESTING			
	Leadership	√		
	Fuel, Raw Water, Electricity	√		The Employer is responsible for NG cost.
	Operators	√	√	For testing, operators shall be provided by Contractor and employer will provide them to monitor and learn the system
	Data Collection	√		
1.10	RELIABILITY RUN TEST			According to Georgian Transmission Grid Code
	Leadership	√		
	Fuel, Raw Water, Electricity	√		The Employer is responsible for NG cost.

## Section 4 – CONTRACT

	Operators	√	√	For testing, operators shall be provided by Contractor and employer will provide them to monitor and learn the system
	Data Collection	√		
1.11	SITE Environmental Health and Safety Management	√		According to Legislation and International best practice.
2	<b>SCOPE OF SUPPLY - CIVIL</b>			
2.1	TOPOGRAPHIC SURVEYS, DETAIL SOIL INVESTIGATIONS AND REPORTS	√		Employer provides Preliminary Topographic Survey, only for informational purposes, see ToR Annex IV
2.2	SITE WORK			
	Clearing/Grubbing	√		
	Earthwork for General Site Levelling	√		
	Earthwork	√		
	In site roads and surfacing	√		
	Access Roads Out of the Power Plant	√		
	Landscaping	√		
	Rain Water Drainage	√		Discharge to the canal.
	Storm Drainage Facilities beyond the Site Capable of Preventing Flooding of the Site	√		Discharge to the canal.
	Dewatering	√		
	Demolition and/or Relocation of Existing above and Underground Facilities	√		The above-ground buildings do not appear on site, information regarding the underground structures is not available.
	Disposal of construction waste materials and excess excavated material	√		
	A datum line with three (3) permanent site bench marks providing data covering elevation, longitude and latitude.		√	
2.3	PILING	√		As and if required.
2.4	FOUNDATIONS	√		
2.5	PIPE RACKS	√		
2.6	BUILDINGS			
	Steam Turbine Hall	√		
	Electrical Control Building	√		The electrical equipment (UPS, batteries, panels, dry transformers), control room, and office for tech & shift staff will be located inside the building. The Electrical Control building shall be 3 story (above ground) and additionally underground cable facility.
	Boiler Feed Water Pump Building	√		

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	Fire Pump Building	√		With internal heating to avoid freezing of pumps and piping.
	Furniture for the Buildings	√	√	The special furniture for control rooms shall be supplied by the Contractor.
	Administrative Building	√		See ToR Annex II
	Hazardous waste storage building	√		
	Chemicals Warehouse	√		See ToR Annex II
	Main warehouse	√		See ToR Annex II
	Shelter warehouse	√		See ToR Annex II
	Workshop	√		See ToR Annex II
	Guard House	√		
	Laboratory (Incl. Tools and Equipment's)	√		See ToR Annex II
	STG Hall	√		
	Water Treatment System Building	√		
2.7	OTHER STRUCTURES	√		
	Security Towers	√		
	Firewalls for Transformers	√		
	Effluent pit	√		
	Fencing around the project site	√		
2.8	PAINTING AND INSULATION	√		
2.9	HVAC SYSTEMS	√		
2.10	CRANES AND HOISTS	√		Shall be installed in Workshops, Warehouses, STH and Etc.
<b>3.</b>	<b>GAS TURBINE &amp; GENERATOR</b>			Outdoor type
3.1	TWO (2) GAS TURBINE & GENERATOR PACKAGES	√		
3.2	GAS TURBINE AIR INLET SYSTEM			
	Air inlet filter and accessories	√		As per ambient conditions
3.3	GAS TURBINE AUXILIARY SYSTEM			
	Fuel Gas System	√		
	Lube Oil System	√		
	Hydraulic Oil System	√		
	Compressor Washing System	√		Offline and Online
3.4	GENERATOR & AUXILIARIES			
	Generator	√		

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	Generator circuit breaker	√		
	Generator isolated phase bus duct	√		
	Generator neutral grounding cubicle	√		
3.5	ELECTRICAL SYSTEMS AND EQUIPMENT			
	Excitation system	√		
	Turbine Starting System	√		
	AC Motor Control Centers	√		
	PCC	√		
	DC Panel Board	√		
3.6	GAS DETECTION AND FIRE PROTECTION SYSTEM			
	Gas Detection System	√		
	Fire Detection System	√		
	Fire Extinguishing System	√		
3.7	NOISE ENCLOSURE FOR GAS TURBINE	√		
3.8	VENTILATION SYSTEM FOR ENCLOSURE	√		
3.9	CONTROL AND INSTRUMENTATION			
	Turbine control system	√		Two remote operator WS should be provided in Electrical and Control Building Control room for operators and one WS in Engineering Room. All WS's 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).
	Generator control system	√		
	Turbine and generator protection system	√		
4	HEAT RECOVERY STEAM GENERATOR			
4.1	TWO (2) SET OF HORIZONTAL TYPE HRSG AND AUXILIARIES			Outdoor type
	HRSG	√		
	Dearator	√		
	Insulation internal casing	√		
	Insulation external drum & piping	√		
	Ladders, stairs, walkways	√		
4.2	HRSG EXHAUST SYSTEM			
	Main stack	√		Design shall be in compliance with environmental studies.
	Blanketing plates	√		
	Aircraft warning lighting	√		
	Platform and stair lighting	√		

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4.3	CONTINUOUS EMISSION MONITORING SYSTEM(CEMS)	√		
4.4	<b>BYPASS STACK</b>			
	Diverter damper	√		For one Gas Turbine only
	Guillotine damper	√		For one Gas Turbine only
	By pass stack	√		For one Gas Turbine only & Design shall be in compliance with environmental studies.
<b>5</b>	<b>STEAM TURBINE PACKAGE</b>			
5.1	ONE (1) STEAM TURBINE (FOR TWO SETS OF GAS TURBINE) AND AUXILIARIES			
	Steam Turbine	√		
	Acoustical enclosure	√		
	Stop and control valves	√		
	Admission valves	√		
	By pass valves	√		
	Exhaust hood system	√		
	Steam sealing system	√		
	Gland sealing system	√		
	Turning Gear	√		
	Turbine drain system	√		
	Lube oil system	√		
	Hydraulic oil system	√		
	Insulation	√		
5.2	ELECTRICAL SYSTEMS AND EQUIPMENT			
	Excitation system	√		
	AC Motor Control Centre's	√		Incorporated in plant MCC
	DC Panel Board	√		
5.3	GENERATOR & AUXILIARIES			
	Generator	√		
	Generator circuit breaker	√		Generator Circuit Braker shall be installed on both side of ST generator
	Generator isolated phase bus duct	√		
	Generator neutral grounding cubicle	√		
5.4	CONTROL AND INSTRUMENTATION	√		Controlled by DCS
	Turbine Control System	√		Two remote operator WS should be provided in Electrical and Control Building Control room for operators and one WS in Engineering Room. All WS's HMI should be configured to show both GT/GTG and STG in case if STG is
	Generator Control System	√		



## Section 4 – CONTRACT

	Turbine & Generator Protection System	√		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).
<b>6</b>	<b>SCOPE OF SUPPLY – ELECTRICAL</b>			
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
6.2	HV SWITCHGEAR/SUBSTATION	√		
6.3	HV OHL BETWEEN GRID AND CCPP	√		
6.4	TRANSFORMERS			
	Generator Step up Transformers for GTG	√		
	Generator Step up Transformer for STG	√		
	Unit Auxiliary Transformers	√		
	Station Auxiliary Transformers	√		
6.5	MEDIUM VOLTAGE SWITCHGEARS	√		
6.6	LOW VOLTAGE SWITCHGEARS	√		
6.7	MCC PANELS	√		
6.8	AC DISTRIBUTION SYSTEMS	√		
6.9	DC SUPPLY AND UPS SYSTEM	√		
6.10	GENERATOR CONNECTIONS	√		
6.11	PROTECTION RELAYING SYSTEM	√		
6.12	ELECTRICAL MONITORING SYSTEM	√		Should be consider in SCADA altogether, 500 KV Switchyard, 6.3 KV Switch bord for Incomers, Tie breaker, SAT breakers & 380 Volts Switch board operation incomers, Ties breakers, MV motors and etc. also, it shall be operated from DCS.
6.13	ELECTRICITY TARIFF METERING	√		
6.14	CABLES AND RACEWAY/DUCT BANK SYSTEM	√		
6.15	GROUNDING SYSTEM	√		
6.16	POWER PLANT LIGHTING			
	Road lighting	√		
	Building lighting	√		
	Equipment lighting	√		

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6.17	COMMUNICATION SYSTEM	√		Within plant area telephone and internet system.
6.18	ALARM, ACCESS CONTROL, PUBLIC ADDRESS, CCTV AND SECURITY SYSTEMS	√		
6.19	EMERGENCY DIESEL GENERATOR	√		
6.20	BLACK START DIESEL GENERATOR	√		With a grid (national) rebuild complete function
6.21	CATHODIC PROTECTION AND HEAT TRACING (for all necessary pipe and vessel facilities)	√		
<b>7</b>	<b>INSTRUMENTATION &amp; CONTROL SYSTEM</b>			
7.1	DCS	√		
	Large screen display	√		3x55" and 1x70" Displays
	Programmable Logic Computers	√		
	Relaying/metering/protection	√		
	RTU/SCADA system	√		
7.2	LOCAL INSTRUMENTS AND CABLES	√		
7.3	PLC	√		Auxiliary system.
<b>8</b>	<b>SCOPE OF SUPPLY - BALANCE OF PLANT "MECHANICAL"</b>			
8.1	FUEL SYSTEM (NATURAL GAS)			
	Fuel Gas Pipe Line from Main line tie-in point to GPRMS		√	
	Gas Pressure Reducing, Regulation and Metering Station (GPRMS)		√	
	Gas Pipeline from GPRMS to plant	√		
	Natural Gas Compressor Station with Canopy	√		Gas compressor electrical engines should be equipped with soft starter unit and EPC contractor should calculate and identify appropriate soft start device to balance compressor electrical engine power factor parameter to avoid disturbance in system.
	Gas Regulatory Station (RMS)	√		Inside Plant. Shall have ability to work without regulation (Using bypass)
	GT Fuel Auxiliary System	√		
	Fuel Gas Piping within the Site Boundary	√		

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8.2	RAW WATER SUPPLY SYSTEM			
	Settling Pond construction	√		Capacity Should be defined by engineer based on plant water volume requirements.
	Raw Water piping and pump station (with canopy)	√		
	All other required equipment, Connection Piping, Valves, and Piping Fittings	√		
8.3	RAW WATER TREATMENT SYSTEM			Shall be built by the Contractor.
	Flocculator	√		Design should be done according sample analysis results, taken in accordance of standards and canal water turbidity level
	Service Water Pump	√		
	All required equipment/facilities Connection Piping, Valves, and Piping Fittings	√		
8.4	DEMINERALIZED WATER TREATMENT SYSTEM			
	Two demineralized water transfer pumps	√		
	Demineralized water storage tank	√		As per relevant standards.
	Intermediate product tanks	√		As per relevant standards.
	Acid and Caustic Tanks	√		As per relevant standards.
	All required equipment/facility, connection Piping, piping fittings, valves, instruments, and controls	√		
8.5	COOLING WATER SYSTEM			
	Mechanical Induced Draft Cooling Tower	√		
	Circulating Water Pump	√		
	Circulating Water Chemical Dosing Skid	√		
	All required equipment/facilities, Connection Piping, Valves, and Piping Fittings	√		
8.6	CLOSED COOLING WATER SYSTEM			
	Auxiliary coolers & Auxiliary cooling water expansion tank	√		As per relevant standards.
	Heat Exchanger	√		
	CCW Circulation Pumps	√		
	All required equipment/facilities, Connection Piping, Valves, and Piping Fittings	√		
8.7	WASTE WATER TREATMENT			

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	Sewage Treatment Plant	√		The Contractor's scope is to install sewage system within the site boundary and pipeline from the Site boundary to the existing waste water treatment plant (X 504011.766; Y 4589494.926)
	Sanitary Lift Station	√		
	Oily Wastewater Separator System	√		
	Waste Water Collection Pit	√		
	Waste Water Transfer Pump	√		
	Connection Piping, Valves, and Piping Fittings	√		
8.8	POTABLE WATER SYSTEM			
	Potable water pipeline	√		Tie-in (X 503512.961; Y 4589518.387)
	Potable Water Storage Tank	√		
	Potable Water Supply Pump	√		
	Connection Piping, Valves, and Piping Fittings	√		
8.9	MAIN STEAM SYSTEM			
	HP steam system	√		
	LP steam system	√		
8.10	CONDENSATE SYSTEM	√		
8.11	CONDENSER AIR REMOVAL SYSTEM	√		
8.12	BOILER FEED WATER SYSTEM	√		
	Boiler feed water pumps	√		
	Piping, valves, and instrumentation	√		
8.13	CHEMICAL INJECTION & DOSING SYSTEM	√		
8.14	STEAM AND WATER SAMPLING AND ANALYSIS	√		
8.15	BOILER BLOW-DOWN SYSTEM	√		
8.16	STEAM BYPASS SYSTEM	√		
8.17	INSTRUMENT AIR SYSTEM	√		
8.18	SERVICE AIR SYSTEM	√		
	Air Compressor	√		Configuration 3X100%
8.19	Nitrogen Generation System	√		
8.20	FIRE PROTECTION SYSTEM	√		
	Fire Hydrant System	√		

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	Carbon Dioxide System	√		For GT
	Water Spray System	√		
	Portable Fire Extinguishers	√		
	Firefighting Pumps	√		
	Fire Water Ring Main Piping	√		
	Fire Detection System	√		
8.21	PAINTING AND INSULATION	√		
8.22	HVAC SYSTEM	√		
8.23	CRANES AND HOISTS	√		
8.24	LABORATORY TOOLS AND APPARATUS	√		
8.25	PIPING SYSTEM	√		
8.26	PLANT DRAIN SYSTEM	√		
<b>9</b>	<b>OTHERS</b>			
9.1	WORKSHOP EQUIPMENT		√	
9.2	I & C WORKSHOP EQUIPMENT		√	
9.3	FUEL SYSTEM (NATURAL GAS) ANALYSIS	√		Analysis required to determine composition and LHV of fuel gas to ensure proper design of the plant
9.4	ALL OTHER REQUIRED EQUIPMENT, CONNECTION PIPING, VALVES, AND PIPING FITTINGS, CABLING ETC.	√		
9.5	GENERAL SYSTEMS PROGRAMS AND SOFTWARE	√		Last Available Versions
9.6	FINAL VENDOR LIST AND CONTACT DETAILS for all installed equipment	√		Final vendor list is required in order to enable the Employer to purchase spares.
9.7	CONTINUOUS EMISSION MONITORING SYSTEM	√		

## Section 4 – CONTRACT

## Annex 5 – SCHEDULE OF MEETINGS DURING EXECUTION OF CONSULTANCY SERVICES (SAMPLE)

#	Meeting Description	Content / objective	Participants	Frequency
1	Kick-off Meeting			
2	Design Review Meetings			
3	Monthly Project Progress Meetings			
4	Weekly Site Meetings			
5	Commissioning Meetings			
6	Monthly & Quarterly Meetings during DEFECTS NOTIFICATION PERIOD			
7	Project Close Out Meeting			
8	<i>[indicate other technical meetings based on proposal]</i>			
9	<i>[indicate other technical meetings based on proposal]</i>			

[illegible]

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[illegible]

**Annex 6 – CCTPP EPC Contractors Terms of Reference**

**("Employer's Requirements" )**

**1. BACKGROUND**

The Georgian Government has set its strategic objectives for the country's security, one of which is the energy efficiency and independence. Georgia is well-known for its enormous resources of water supply that has led to many initiatives for the development of the hydro power. Despite the clear advantage country has through hydro power, this type of energy production has one important disadvantage – the production is seasonal. Georgia is self-efficient during summer session but in winter the country is in the need of the electricity import. In order to eliminate this problem, the Government of Georgia (GoG) ordered JSC "Georgian Oil and Gas Corporation" (GOGC) to invest in the traditional ways of energy production – Thermal Power Plants.

In 2015, the state owned investment fund JSC "Partnership Fund" (PF), and the state owned JSC "Georgian Oil and Gas Corporation" (GOGC), have completed one of the biggest projects in the history of independent Georgia – the construction of the Combined Cycle Thermal Power Plant in Gardabani (Gardabani 1). The partnership of the two, has established LLC "Gardabani TPP" (GTPP), with 49% shares of PF, and 51% shares of GOGC. The Power Plant has 230 MW installed capacity, which has 56% efficiency ratio, equaling double compared to existing simple cycle Power Plants. The Gardabani 1 mainly serves to increase winter generation and reserve capacity for improved stability of the Georgian electricity system.

In September 2016 "Gardabani TPP2" LLC was established, with 100% ownership of GOGC, with the aim to construct Gardabani 2 Combined Cycle Thermal Power Plant. The Project was covering the construction of a 230 MW Combined Cycle Power Plant in Gardabani, eastern Georgia. The Project responds to the increasing needs of Georgia for electricity, addressing a growing concern for energy independence of the country. In late 2019 Construction of Power Plant completed successfully and currently it is under operation.

In September 2019 Government of Georgia issued decree №2047 "with the aim to construct Gardabani 3 Combined Cycle Thermal Power Plant (hereafter Project) by the "Georgian Oil and Gas Corporation" JSC. The Project envisages the construction of a 272 MW Combined Cycle Power Plant in Gardabani, eastern Georgia. The main objectives of the project are:

- Improve Georgia's energy security;
- Increase winter generation and reserve capacity for improved stability of electricity system.

The Project calls for the construction of a combined cycle power plant (CCPP) with installed capacity of 272 MW. The project is located in the Gardabani region, near the capital city of Tbilisi and adjacent area of CCPP Gardabani 1/ Gardabani 2. The Capital of Georgia - Tbilisi is 40 km from the project site.

The design, construction and commissioning of the project shall be implemented within



scope of EPC/Turn Key Contract (Engineering, Procurement, Construction).

The construction period shall be 28 months from the Commencement Date.

The power plant shall consist of one (1) combined cycle block in a 2-2-1 configuration having two

(2) Gas Turbine Generators (GTG) + two (2) Heat Recovery Steam Generators (HRSG) + one (1) Steam Turbine Generator (STG). Gas Turbine Generators and HRSG installations shall be located externally; Steam Turbine Generator installation shall be internal. The designed Plant life shall be at least 25 years. The fuel for the power plant shall be natural gas and no HRSG supplementary firing. A DN500 pipeline will supply the plant with natural gas. The gas temperature in the territory of Gardabani varies from 0 °C to +30 °C and existing natural gas pipeline pressure varies between 9 to 18.5 bar, although in the future it may become possible to provide gas pressure up to 54 bar, thus project design and equipment has to be chosen accordingly. The Project also shall comprise closed loop cooling water system using an Induced Draught Cooling Tower. The cold circulation water from the circulating water pump house shall lead to the steam turbine condenser (for the condensation of the exhaust steam and thus acting as the heat sink for the power cycle) and the secondary side of the unit auxiliary plate heat exchanger (for cooling the passivated demineralized water in the primary side of the heat exchanger). The Power generated by GTGs and STG will be transmitted at a level of 500 kV. For this purpose, all generators shall be connected to the 500 kV switchyard via dedicated Generator step-up transformers and an overhead conductor. The 500 kV switchyard will be connected to the existing 500 kV switchyard through aerial transmission lines which shall be installed by the Contractor.

## **2. TECHNICAL DESCRIPTION OF PLANT**

The proposal shall be relevant to “Engineering-Procurement and Construction (EPC)” of the Gardabani 3 Combined Cycle Thermal Power Plant Project in Gardabani Site, Georgia.

### **2.1 PROJECT DESCRIPTION**

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Fuel: Natural Gas  
2 Gas Turbines: OM General Electric, Type 6F.03, Axial  
Exhaust, 2 Gas Turbine Generators: Brushless, 50 Hz,  
Gas Turbine Starting Means: Electrical Motor with Black Start  
Generators, 1 Gas Turbine By-Pass Stack,  
Heat Recovery Steam Generator: 2 Pressure system, Non-Reheat, Unfired,  
Natural Circulation,  
Steam Turbine: Condensing, Single Flow;  
Steam Turbine Exhaust: Axial  
Exhaust,  
Steam Turbine Generator: Static or Brushless, 50 Hz,  
Main Cooling System: Closed loop cooling water system using an Induced  
Draught Cooling Tower,  
Demineralized Water System: Demineralized Water System shall be constructed,  
Emergency Diesel Generator  
500 kV Switchyard  
Firefighting System  
Gas Turbine Compressor Cleaning: Off/On-line Compressor Water Wash  
Plant Control Philosophy: Automatic Start-up & Shutdown, Auto/Manual Control  
Remote Dispatching  
Gas Turbine-Generator Enclosure: Outdoor with Acoustic  
Enclosure Steam Turbine-Generator Enclosure: Indoor  
HRSG: Outdoor

## 2.2 ESTIMATED PERFORMANCE

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<i>Measurement</i>	<i>Unit</i>	<i>Value</i>
<b>Performance of GT</b>		
Gross Electrical Output at Generator Terminal of GTs	[kW]	175 200
<b>Performance of ST</b>		
Gross Electrical Output at Generator terminal of ST	[kW]	100 900
<b>Performance of Combined Cycle (ISO Conditions and Special configuration)</b>		
Gross Power	[kW]	276 100
Auxiliary Consumption	[kW]	4 100
Net Power	[kW]	272 000
Plant Net Efficiency	%	57.4

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Note: Actual Gross Output, Actual Auxiliary Consumption, actual Net Output and Actual Plant Efficiency may change

Plant Net Efficiency considering actual configuration of plant should be no less than 55%

Actual test Values with conjunction of ISO Conditions variation and plant actual configuration, should be confirmed by relevant calculations.

### 3. DESIGN CRITERIA

#### SITE DESCRIPTION

The area of the Gardabani 3 Combined Cycle Thermal Power Plant is located adjacent area to the

Northside boundary of CCPP Gardabani 1 and 2 km West from the town Gardabani and approximately 40 km South-East from Tbilisi. The absolute mark of the surface is 292-294 meters above sea level the final elevation shall be confirmed after Contractor finishes the leveling of the site. The Employer will provide the mobilization area with free of charge to the Contractor and there will be no limitation for the working hours of the Contractor for site. The Employer is responsible to obtain necessary permits for the plant construction according to Georgian Legislation. Contractor shall prepare and provide necessary documentation for construction permit in Georgian language to Employer according to №257 Ordinance (Consolidated Version) of the Government of Georgia (Date of issuing 31.05.2019) see ToR Annex III (Extract from №257 Ordinance). no later than 3 months from **Contract sign date**.

In addition, the Contractor shall provide no later than 2 months from **Contract sign date** to GOGC necessary information to prepare ESIA:

- Preparing reports on types and volume of anticipated **emissions** (technical report on stationary sources of the pollution and inventory of hazardous substances exhausted by them and marginal allowable norms of exhaustion/discharge of hazardous substances) for Implementation Phase, cumulative impact assessment with conjunction of existing facilities and preparation of mitigation measures(Stack design should be based on environmental studies.).
- Preparing reports on types and volume of anticipated **noise and vibration**, cumulative impact assessment with conjunction of existing facilities and preparation of mitigation measures.
- Preparing reports on types and volume of anticipated **water quality**, water use and discharged modelling, cumulative impact assessment with conjunction of existing facilities and preparation of mitigation measures.

Also, the contractor is obliged to fulfill the conditions set by the environmental decision and Construction permit terms. Contractor shall utilize his own health and safety plan. The process waste water (blow down of the HRSGs and cooling towers, waste water from water pre-treatment unit and surface waters from GT wash skids) shall be discharged to the existing Waste Water Treatment Plant (X 504011.766 ; Y 4589494.926) west of the plant boundary. The sanitary waste water shall be discharged into the same location. Storm water shall be discharged into the canal nearby the plant.

The Plant will use natural gas as fuel. The natural gas shall be supplied from Gas Main line at regulated pressure of 12.0 bar (a) to 54.0 bar (a) from the gas pipeline. Detailed gas analysis shall be performed by the Contractor.

## GEOLOGICAL FEATURES

According to tectonic regionalization of Georgia (E. Gamkrelidze, 2000) the investigation territory is located in subzone of Marneuli, Bolnisi zone, Artvini-Bolnisi block. Neogene and Quaternary deposits take part in the region geological structure. Quaternary deposits are widely distributed in the investigation area. Genetically they are represented by alluvial and lacustrine-alluvial varieties. Recent alluvial deposits are distributed along Mtkvari riverbed and floodplain as well as at Iveri highland territory. They are lithologically represented by boulders and cobbles, sands and gravels and sands and lean clays. Their thicknesses are from 5m to 20m, and more at some places. Within Gardabani plain boundaries which covers important area and I and II over-floodplain terraces, thickness of alluvial deposits reaches 20-50m. Neogene deposits are widely distributed and represented by upper Pliocene Apsheron stage, upper Pliocene Sarmatian stage deposits; middle Miocene deposit complex and lower Miocene Kotsakhuri horizon. Basic deposits are covered with Quaternary deposits thickness of which is to 50m. Apsheron stage is represented by continental deposits: thick packs of conglomerates, sands, lean clays and variegated color clays. Their thickness is 200-250m. These deposits are open by boreholes at Gardabani plain. Upper Miocene Sarmatian stage – is lithologically represented by variegated clays, sandstones and conglomerates. Thickness of these deposits vary within 100-600m areas (these deposits coincidentally continue middle Miocene rocks). Middle Miocene deposit complex – is lithologically represented by clays, sandstones, conglomerates and mark interbeds. These deposits are open by boreholes below upper Pliocene and Quaternary deposits on the left bank of the river Mtkvari. Their thickness is 400- 900m. Lower Miocene deposits – Kotsakhuri horizon is lithological represented by thin bedded carbonated clays. Whitish sandstone and sand interbeds with small thickness are locally observed in clay section. This horizon thickness is 400-900m within the region areas. The construction site and its adjacent territory is represented by technogenic genesis gravelly and clayey soils to 1.5- 2.5m depth; and below them to 30.0m surveyed depth – by alluvial garvels and cobbles. According to literature and fund material data thickness of gravels and cobbles of old alluvial terrace of the river Mtkvari is quite big. It is confirmed by data of boreholes drilled now within the construction site areas. Gravelly layer bed (bottom) was not crossed in none of boreholes drilled to 30m depth; so thickness of these deposits exceeds the surveyed depth. Rock varieties of upper Pliocene (Apsheron) continental molasse deposits do not come out on the surface; they are entirely located below Quaternary cover and are represented by alternation of lean clays, sandstones and 5-10m thick conglomerate beds. The older – marine Aghchagil deposits are located in 150m depth. The investigation is located in Artvini-Somkhiti block, Bolnisi zone which is, by its side, significantly complicated by intersecting tectonic faults. The zone is located in medium seismic risk area. According to macro seismic regionalization scheme of Georgia, earthquake with 7-8 scale intensity threats to areas populated in this territory (Gardabani, Akhali Samgori, Gamarjveba, Kesalo and etc). According to existing statical data, earthquakes with high magnitude that can make significant harm to modern constructions and impact on relief morpho dynamics often took part in hystorical and the recent past as well. Below we give existing statical data for the closest populated areas (Marneuli, Gardabani) of the investigation site and unidimensional coefficient of seismic waves for the existing populated territories:

1. Gardabani (3390) – 0.11 m/sec<sup>2</sup>; 7 scale;
2. Aghtakla (3400) – 0.14 m/sec<sup>2</sup>; 8 scale;
3. Akhalsheni (3415) – 0.11 m/sec<sup>2</sup>; 7 scale.

According to the seismic regionalization map of Georgia the investigation territory is

located between 7 and 8 scale seismic active zones (Order #1-1/2284 given by Minister of Economic Development of Georgia, dated October 07, 2009, Tbilisi, (Construction Norms and Rules “Seismic Resistance Construction” pn 01.01-09)). Contractor is obliged to prepare all necessary geotechnical studies for plant design.

**Below mentioned Environmental Conditions are Regional.**

#### **PRECIPITATION**

The average amount of annual atmospheric precipitation is 540mm; from November to March - 136mm, and from April to October – 404mm. The maximum daily atmospheric precipitation is 147 mm. The region of the area belongs to the snowy region 2. The area of the snow covers per 1 m<sup>2</sup> of the horizontal surface for the snowy region 2 is 1,2 kPa H.

Air filter selection for plant shall be done considering nearby Infrastructure, also humidity and dust.

#### **WIND**

An average annual wind speed is 2.1 m/s, the highest monthly average – 2.7 m/s in March, the lowest – 1.6 m/s in November and December; the normative value of wind pressure is 0.48 kPa, and on the circular 10 mm diameter cross section on elements, the regulatory wall thickness of the ice at 10m from the ground surface is 10mm

#### **AMBIENT TEMPERATURE**

The climate of the plant area is continental, subtropical with hot dry summer and mild winters with unstable weather - an abrupt change in air temperature and rainfall. The average annual temperature is 12.8°C, the absolute maximum +42°C; and the absolute minimum -20 °C; design

ambient temp. +15°C.

Plant Design Conditions

The following shall be used as the basis for plant design:

<i>Measurement</i>	<i>Unit</i>	<i>Value</i>
Site Altitude	m	292-294
Site pressure	mbar	976
Ambient dry-bulb temperature	°C	15
Ambient relative humidity	%	68
Grid Voltage	kV	500
Grid Frequency	Hz	50

## **FUEL SPECIFICATIONS**

The design fuel will be Natural Gas. The combined cycle power plant shall be designed to operate satisfactorily when firing Natural Gas. The Contractor shall undertake any analysis required to determine composition and LHV of fuel gas to ensure proper design of the plant.

## **RAW WATER REQUIREMENT**

The raw water shall be collected from the settling ponds (shall be constructed by contractor and connected to canal) and nearby canal at the north-west side of the plant area. Design of Settling pond(s) should be based on plant's (unify/consolidated) engineering calculations, water canal analysis, capacity of plant RW usage, volume of water treatment and chemical dosing units and etc. RW Consumption rate and storage capacities is part of EPC contractors' scope, which should be based on standards, safe operation and International best practice.

Contractor is Obligated to analyze the water quality in canal and select plant equipment's accordingly.

## **PLANT ARRANGEMENT**

The equipment shall generally be arranged in coordination with the Employer. The equipment arrangement and access shall minimize personnel exposure to physical harm during the operation, testing, or maintenance of the equipment. Consideration shall be given to avoiding lowclearance passageways and tripping obstacles.

## **EMISSIONS**

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Air emissions and noise emissions shall be as per the Georgian Legislation requirements.

## **CODES AND STANDARDS**

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The power plant shall be built to USA,EU and international codes and standards and agreed with Employer. A detailed listing of applicable standards shall be submitted within the Proposal in the RFP by the participant and approved by the Employer. Any deviations from above standards shall be approved by the Employer.

## **TESTING**

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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. All electrical testing shall be done according to Georgian Transmission Grid Code.

## THE PLANT MAJOREQUIPMENT

This paragraph describes the proposed plant's major equipment selection, equipment description, reference list of major equipment suppliers. Equipment and materials described herein shall be factory tested in accordance with manufacturer's standard procedures:

EQUIPMENT	VENDOR
<b>GAS TURBINES</b>	GENERAL ELECTRIC
<b>STEAM TURBINE</b>	GENERAL ELECTRIC
	SIEMENS
	ANSALDO ENERGIA
<b>GENERATORS<sup>1</sup></b>	GENERAL ELECTRIC
<b>HRSG</b>	AALBORG
	NEM
	NOOTER ERIKSEN
	FOSTER WHEELER
	DOOSAN
	CMI
<b>BOILER FEED WATER PUMPS</b>	RAFAKO
	FLOWERVE
	SULZER
	KSB ITUR
	KIRLOSKAR
	TORISHIMA
	HYUNDAI
<b>STEP UP TRANSFORMERS</b>	HYOSUNG/EBARA
	ABB
	HYUNDAI
<b>HV AUXILIARY TRANSFORMER</b>	SIEMENS
	ABB
	HYUNDAI
<b>LV AUXILIARY TRANSFORMER</b>	SIEMENS
	ABB
	HYUNDAI
<b>GENERATOR CIRCUIT BREAKER</b>	SIEMENS
	ABB
	GENERAL ELECTRIC



<b>MV/LV SWITCHGEARS</b>	SIEMENS
	ABB
	SCHNEIDER
<b>GAS COMPRESSORS</b>	ATLAS COPCO
<b>STEAM BYPASS VALVES</b>	CCI
	FLOWSERVE
	TYCO
	TLV
	SIEMENS
	ABB
	SAMSON
	WONIL
<b>FIRE PUMPS</b>	PETTERSON
	AURORA
	ITT
	PEERLESS
<b>AIR COMPRESSOR</b>	ATLAS COPCO
	INGRESSOL
<b>CRANE AND HOIST</b>	KONE
	IŞIK
	BVS
<b>ISOLATED PHASE BUS</b>	SIMELECTRO
	GENERAL ELECTRIC
	ALFA STANDARD
<b>DISTRIBUTED CONTROL SYSTEM</b>	HONEYWELL
	SIEMENS
	ABB
	EMERSON
<b>MV/LV CABLES</b>	SUD KABEL
	NEXANS
	PRYSMIAN
	SURTERI

<sup>1</sup>Remark : The generator of Steam Turbine can be the same VENDOR's as Steam Turbine.

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In case of AUTHORIZED LICENSED manufacturer, final product & design package shall be approved by the above-mentioned vendors.

## **General Description of the Plant**

The designed plant shall have the capability to operate on both full condensing modes. The plant shall have Main Condenser cooled by the Cooling water from the Cooling Tower. In the full condensing mode, the Steam Turbine exhaust steam directed to the Main Condenser shall be cooled by the cooling water circulating between the Main Condenser & the Cooling Tower. The steam condensed in the Main Condenser shall then forwarded to the HRSG by the Condensate Forwarding Pumps. The condenser must be capable to condensate 100% of steam at the time of ST trip or load reduction time. It must hold the process of condensation till the time of ST recovery to normal operation;

The plant is intended to be operated on Combined Cycle operation mode. However, By-Pass Stack shall enable power plant to operate in Simple Cycle operation mode.

### **WATER DRAINAGE SYSTEM**

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A surface drainage system shall be provided by appropriate grading and sloping to direct surface run-off, not at risk of contamination from potential spills of fuel, oils and coolants, away from equipment and structures. Unlined swales and ditches collect, concentrate and discharge the run- off flow to the water channel at west side of the plant area.

### **ASPHALT PAVING/SURFACING/SIDE WALKS**

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Asphalt concrete roads and sidewalks with curbstones shall be provided within the plant boundary by the Contractor and shall be marked and painted. Roads shall be 6 m (for main roads) and 4 m (for maintenance areas) wide.

### **BOUNDARY WALL/FENCE/GATES**

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It is considered to construct a site boundary wall from all sides around the new plant area. Plant boundary wall shall be reinforced concrete columns, with concrete slabs. The height of the boundary wall shall be 2.4 m and additionally 600mm high 'Y' shaped MS Angle frame for concertina wire loop and column width of 300mm. Chain Link Fence shall be provided around transformers and switchyard. Security System (CCTV; Infrared Intrusion detectors & etc.) shall be installed by the Contractor. CCTV cameras should be mounted on walls and entrances of facilities, indoor of facilities (in corridors), indoor of plant equipment, along the fence, near the gate and etc. Access Control System should be located in entrances of Administrative and Control buildings, also at gates and entrances of plant.

### **LIGHTING SYSTEMS**

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Outdoor lighting shall be high pressure sodium vapour type and shall provide illumination in areas of normal personnel traffic, such as: Building exteriors, Equipment areas, Walkways and stairs, Roadways. Aviation obstruction lighting shall be provided in accordance with International Standards.

### **GROUNDING**

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The grounding system consists of bare copper cables and ground rods and provides a metallic ground connection for all electrical apparatus installed in the power plant in order to bond building steel, exposed metal structures and other non-current carrying metallic parts. Grid calculation shall be made according to IEEE Std80.

## PLANT CABLING

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XLPE insulated fire resistant, copper conductor, Medium Voltage cables shall be utilized for the MV cable systems.

PVC insulated, copper conductor, Low Voltage cables shall be utilized for the LV cable systems.

All cable for 6.3 kV class service shall have solid dielectric insulation and 90degC maximum continuous conductor temperature. Cable for 6.3 kV class services shall be shielded. All cables for 380/220V service shall have conductors with solid dielectric insulation and 90degC conductor temperature.

Cables shall be installed in duct banks in the outdoor areas.

It should be considered a backup power supply (for own consumption) of the 6,3 kV bus bar from the existing 6,3kv switchgear of Gardabani TPP 2 (X 504464 Y 4589732).

It will be necessary to install two new 6,3 kV feeders in Gardabani TPP 2 switchgear, as there are no spare feeders available. 8-8,2 MW feeder is required from 6,3 kV bus bar 02BBA and 4-4,5 MW from 6,3 kV bus bar 02BBB

Transmission lines (Cables) will be required to be installed between Gardabani TPP 2 and Gardabani TPP 3, that will capable of carrying requested power.

There are the following requirements for additional feeders:

- Bus

bar A Model:

UniGear ZS1

Breaker type	VD4/P
rated voltage	6.3 kv
rated current	1250 A
frequency	50 Hz
CT	1250/1

- Bus

bar B Model:

UniGear ZS1

Breaker type	VD4/P
rated voltage	6.3 kv
rated current	630 A
frequency	50 Hz
CT	500/1

Also 24 core Optical network cable should be installed between abovementioned TPP's

## **LIGHTNING PROTECTION**

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The power plant facility shall be protected by a lightning protection system designed in accordance with international standards.

Lightning protection for Plant structures such as buildings, towers and stacks shall be provided. Ground rods or ground mats connected to the grounding system are located at the base of each structure. The lightning protection shall be in accordance with IEC and local practice, Lightning Protection Code.

## **FIRE DETECTION & ALARM SYSTEMS**

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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; fixed water protection systems, with Gas protection to enclosure; fire alarms and portable appliances. Full controlled FAP (fire alarm panel) 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 ensure fast and exact identification of system failure.

The design of these systems shall comply with the current requirements of the National Fire Prevention Authority (NFPA Codes and standards).

- Certified engineer shall be presented at design stage

## **CATHODIC PROTECTION SYSTEM**

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Buried pipes shall be protected by factory coating and wrapped by suitable corrosion-resistant materials on pipe welds.

A cathodic protection system (*impressed current cathodic protection ICCP*) shall be installed for corrosion protection of underground metal pipes. For the protection of other underground structures and equipment, sacrificial galvanic anodes of magnesium, zinc, aluminum or ICCP system shall be installed.

For the protection of underground structures, extensive piping systems, and in locations where soil resistivity is high, an ICCP system shall be used.

## **500 kV SWITCHYARD UGL & OHL<sup>1</sup>**

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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, technical specifications and superiority of the selected option should be agreed with GSE by EPC Contractor). The new 500 kV Switchyard shall have VT bay furnished single bus with arrangement with three (3) incoming bays for GT- GSUT -1, GT-GSUT -2 & STG-GSUT & one outgoing bay to GSE Switchyard. The new switchyard shall also have RTU (Remote terminal unit) along with control cables for operation through plant DCS which will be located in Main Control building. The cable connection in the GSE Switchyard shall be performed by the GSE with assistance of the Contractor.

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 of necessary electrical parameters and appropriate electrical protection systems. Required Fault/ Short Circuit level of 500kV Switchyard is 50KA and Existing Fault/ Short Circuit level of 6.3kV Switchgear of GTPP#2 is 25 KA. For additional details see ToR Annex I.

## **DM WATER**

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Contractor shall build according to International Standards a new water treatment system including reserve tanks, dedicated for Gardabani 3. 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. all BOP equipment connected to WTP control system, such as Raw Water, Water Storage Tanks, Compressed Air, Potable Water, Service Water systems & etc., also this equipment should have direct hardwire connections in DCS which shall be configured accordingly.

## **POTABLE WATER SYSTEM**

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Potable Water shall be sourced (pipeline shall be constructed) from existing potable water main line (X 503512.961 ; Y 4589518.387) and distributed as required. One 15m<sup>3</sup> potable water storage tank shall be installed with 2x100% potable water pressurization / distribution pumps.

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<sup>1</sup> Coordinates for GSE Switchyard:

1	X 504151	Y 4590171
2	X 503931	Y 4590346
3	X 504084	Y 4590540
4	X 504302	Y 4590368

Approximate Distance from PP to Switchyard - 1200 meters.

## **FIRE PUMP STATION**

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The Power Plant shall have its dedicated indoor Fire pump station. The Fire Water Pump shall be installed near cooling water pump house and Cooling Tower Basin shall be used as fire water reservoir.

Water based firefighting system shall be installed as follows:

- a) Firefighting installation for buildings and equipment.
- b) Site fire hydrant ring system.
- c) Firefighting pumping installation (one electric and one diesel driven fire pumps).
- d) Fire alarm system.

The installation shall include electric and diesel driven fire pumps, electrically driven jockey pump (to maintain pressure in the ring main system), pump starting and control

equipment, strainers, lifting equipment, pipework, valves, supports, instrumentation and all equipment necessary for the satisfactory operation of the system.

A control panel shall be provided in the fire pump house to facilitate maintenance and to allow the pumps to be started and stopped both manually and automatically.

Automatic starting of the pumps shall be arranged in sequence by means of diaphragm operated switches which, on pre-determined drops in pressure in the fire protection system shall start the pumps. The control equipment shall include a logic circuit, which will initiate starting of the standby electric fire pump or the engine driven pump if the motor driven pumps fail to start in a pre-determined time or if the pressure is not restored after operation of the motor driven pumps.

## **ELECTRICAL CONTROL BUILDING**

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Electrical Control Building shall be built by the Contractor. Relevant HVAC system (with possibility of individual temperature modes in different areas) shall be available in the building.

## **GAS SUPPLY SYSTEM**

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The Gas supply to the new plant shall be done by contractor from the GPRMS (Gas Pressure Reducing and Metering Station) at the south-east part of the new plant area. Contractor shall realize connection to the GPRMS. Contractor shall install DN 500 factory Coated pipeline (Std: API 5L PSL 2; Steel Grade X52) and connect to GPRMS. The Contractor shall construct Regulatory Metering Station (the valve station together with necessary filtering and metering equipment, hereafter RMS) within the plant boundary. Electrical power connection and I&C signaling to the RMS shall be under Contractor Scope. All the Land Acquisition works related to the natural gas pipeline is in Employer Scope.

, Two ESD valves shall be installed. One at GPRMS outlet (with possibility to install inside the fence) and second inside the plant territory, both valves should be integrated in DCS system.

In future outlet gas pressure From GPRMS could be up 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 to receive gas bypassing the compressor and received gas should be filtered, heated, regulated, measured and etc. All measures should be done to guarantee gas quality, appropriate for turbine consumption

RMS shall include filtration system and chromatograph

Plant should have ability to operate without compressor station at maximum of 54 bar and all sufficient infrastructure (heater and etc...) shall be installed. Gas inlet system should be designed for gas pressure up to 54 bar.

Fuel Gas compressor Auxiliary power consumption should be considered in power plant's total Auxiliary power consumption.

#### 4. SPLIT OF OBLIGATIONS

Contractor's and Employer's general scope of services & supply and responsibilities are defined in the following matrix. The list of power plant supporting systems is not exhaustive.

No.	Task	Responsible		Remarks
		Contractor	Employer	
1	SCOPE OF SERVICES			
1.1	PROJECT MANAGEMENT	√		
	Periodic Scheduling Reports	√		
	Engineering and Design	√		
	Procurement	√		
	Manufacture & Fabrication	√		
	Marine Transportation, Unloading, Storage	√		Port of Poti or Batumi
	Inland Transportation	√		
	Customs Clearance	√	√	The contractor shall provide all necessary documents.
	O&M Manuals	√		Including the equipment specification from manufacturer. Shall be translated to Georgian language and submitted to employer
	As Built Drawings	√		
	Training	√		Shall be conducted by Vendors/Manufacturers certified and qualified personnel
	Warranty	√		24 (twenty-four) months from the Taking-Over Date.
1.2	FINANCIAL SERVICES			
	Performance Bond	√		10% of the total Contract price
	Advance Payment Bond	√		15% of the total Contract price
	Warranty Bond	√		5% of the total Contract price

	Financing		√	
1.3	TAXES	√	√	
1.4	INSURANCE			
	Marine & Transport Insurance	√		
	Erection All Risk Insurance	√		
	Third Party Liability Insurance	√		
	Workmanship Compensation Insurance for the Contractor's personnel	√		
1.5	SITE SERVICES			
	Site Management	√		
	Supporting the Contractor in Interfacing and Coordination with Permit Authorities		√	
	Temporary Land for Mobilization, Lay Down, Storage and Camp Area	√	√	Employer will provide sufficient area nearby the territory of the Power Plant Area at no cost to the Contractor. Contractor, also shall obtain the permit for camp construction.
	Temporary Works and Facilities	√		
	Services and Facilities for the Employer and the Employer's Representative for temporary use during construction (office space approx. 150 sq.m (10 rooms), including meeting room). Also, utilities, internet, restroom & portable water shall be provided.	√		
	Studies and Calculations Required to Integrate the Power Plant into the Transmission System.		√	Including but not limited to load flow, insulation and protective device coordination studies outside the plant boundary
1.6	CONSTRUCTION, ERECTION, AND PRE-COMMISSIONING.			
	Construction & Erection of the Equipment within the Contractor's Scope of Supply	√		
	Construction Management	√		
	Construction Labor	√		
	Vendor Technical supervisory Support	√		
	Construction Potable Water	√		



	Construction Water	√		
	Construction Power	√		
	Construction Standard Tools & Equipment	√		
	Construction Special Tools & Equipment	√		
	Testing and Pre-commissioning	√		
	Work Permit for Expatriate Labor/Technician	√	√	The Employer will assist in obtaining necessary permits and visas. The cost of work permits and visas will be borne by the Contractor.
1.7	CONSTRUCTION QUALITY CONTROL			
	Statutory Third-Party Authority Inspections	√		As required by standard and codes.
	Quality Assurance Plans, Procedures, Programs, Audits, and Reports	√		
1.8	TESTING, COMMISSIONING AND START-UP			
	Management	√		
	Fuel		√	The Employer is responsible for NG cost.
	Water	√		RAW, DM and etc.
	Electrical Power for Start-up and Commissioning	√		
	Electrical Load for Start-up and Commissioning	√		
	Start-up and Commissioning Consumables	√		
	Procedures	√		
	Vendor Technical Advisory Support	√		
	Standard and Special Test Instruments, Tools and Equipment	√		
	System Walk down and Turnover	√		
	Equipment Commissioning	√		
	Start-up and Commissioning Spares	√		
	Punch List Administration	√		
	Care and Custody of the Plant up to the Provisional Acceptance Date	√		
	Equipment Function Test and Pre-commissioning	√		

	Operation & Maintenance of the Plant up to the contractually agreed Provisional Acceptance Date	√		
1.9	PERFORMANCE TESTING			
	Leadership	√		
	Fuel, Raw Water, Electricity	√		The Employer is responsible for NG cost.
	Operators	√	√	For testing, operators shall be provided by Contractor and employer will provide them to monitor and learn the system
	Data Collection	√		
1.10	RELIABILITY RUN TEST			According to Georgian Transmission Grid Code
	Leadership	√		
	Fuel, Raw Water, Electricity	√		The Employer is responsible for NG cost.
	Operators	√	√	For testing, operators shall be provided by Contractor and employer will provide them to monitor and learn the system
	Data Collection	√		
1.11	SITE Environmental Health and Safety Management	√		According to Legislation and International best practice.
<b>2</b>	<b>SCOPE OF SUPPLY - CIVIL</b>			
2.1	TOPOGRAPHIC SURVEYS, DETAIL SOIL INVESTIGATIONS AND REPORTS	√		Employer provides Preliminary Topographic Survey, only for informational purposes, see ToR Annex IV
2.2	SITE WORK			
	Clearing/Grubbing	√		
	Earthwork for General Site Levelling	√		
	Earthwork	√		
	In site roads and surfacing	√		
	Access Roads Out of the Power Plant	√		
	Landscaping	√		
	Rain Water Drainage	√		Discharge to the canal.
	Storm Drainage Facilities beyond the Site Capable of Preventing Flooding of the Site	√		Discharge to the canal.
	Dewatering	√		
	Demolition and/or Relocation of Existing above and Underground Facilities	√		The above-ground buildings do not appear on site, information regarding the underground structures is not available.

	Disposal of construction waste materials and excess excavated material	√		
	A datum line with three (3) permanent site bench marks providing data covering elevation, longitude and latitude.		√	
2.3	PILING	√		As and if required.
2.4	FOUNDATIONS	√		
2.5	PIPE RACKS	√		
2.6	BUILDINGS			
	Steam Turbine Hall	√		
	Electrical Control Building	√		The electrical equipment (UPS, batteries, panels, dry transformers), control room, and office for tech & shift staff will be located inside the building. The Electrical Control building shall be 3 story (above ground) and additionally underground cable facility.
	Boiler Feed Water Pump Building	√		
	Fire Pump Building	√		With internal heating to avoid freezing of pumps and piping.
	Furniture for the Buildings	√	√	The special furniture for control rooms shall be supplied by the Contractor.
	Administrative Building	√		See ToR Annex II
	Hazardous waste storage building	√		
	Chemicals Warehouse	√		See ToR Annex II
	Main warehouse	√		See ToR Annex II
	Shelter warehouse	√		See ToR Annex II
	Workshop	√		See ToR Annex II
	Guard House	√		
	Laboratory (Incl. Tools and Equipment's)	√		See ToR Annex II
	STG Hall	√		
	Water Treatment System Building	√		
2.7	OTHER STRUCTURES	√		

	Security Towers	√		
	Firewalls for Transformers	√		
	Effluent pit	√		
	Fencing around the project site	√		
2.8	PAINTING AND INSULATION	√		
2.9	HVAC SYSTEMS	√		
2.10	CRANES AND HOISTS	√		Shall be installed in Workshops, Warehouses, STH and Etc.
<b>3.</b>	<b>GAS TURBINE &amp; GENERATOR</b>			Outdoor type
3.1	TWO (2) GAS TURBINE & GENERATOR PACKAGES	√		
3.2	GAS TURBINE AIR INLET SYSTEM			
	Air inlet filter and accessories	√		As per ambient conditions
3.3	GAS TURBINE AUXILIARY SYSTEM			
	Fuel Gas System	√		
	Lube Oil System	√		
	Hydraulic Oil System	√		
	Compressor Washing System	√		Offline and Online
3.4	GENERATOR & AUXILIARIES			
	Generator	√		
	Generator circuit breaker	√		
	Generator isolated phase bus duct	√		
	Generator neutral grounding cubicle	√		
3.5	ELECTRICAL SYSTEMS AND EQUIPMENT			
	Excitation system	√		
	Turbine Starting System	√		
	AC Motor Control Centers	√		
	PCC	√		
	DC Panel Board	√		
3.6	GAS DETECTION AND FIRE PROTECTION SYSTEM			
	Gas Detection System	√		
	Fire Detection System	√		

	Fire Extinguishing System	√		
3.7	NOISE ENCLOSURE FOR GAS TURBINE	√		
3.8	VENTILATION SYSTEM FOR ENCLOSURE	√		
3.9	CONTROL AND INSTRUMENTATION			
	Turbine control system	√		Two remote operator WS should be provided in Electrical and Control Building Control room for operators and one WS in Engineering Room. All WS's 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).
	Generator control system	√		
	Turbine and generator protection system	√		
<b>4</b>	<b>HEAT RECOVERY STEAM GENERATOR</b>			
4.1	TWO (2) SET OF HORIZONTAL TYPE HRSG AND AUXILIARIES			Outdoor type
	HRSG	√		
	Dearator	√		
	Insulation internal casing	√		
	Insulation external drum & piping	√		
	Ladders, stairs, walkways	√		
4.2	HRSG EXHAUST SYSTEM			
	Main stack	√		Design shall be in compliance with environmental studies.
	Blanketing plates	√		
	Aircraft warning lighting	√		
	Platform and stair lighting	√		
4.3	CONTINUOUS EMISSION MONITORING SYSTEM(CEMS)	√		
4.4	<b>BYPASS STACK</b>			
	Diverter damper	√		For one Gas Turbine only
	Guillotine damper	√		For one Gas Turbine only
	By pass stack	√		For one Gas Turbine only & Design shall be in compliance with environmental studies.
<b>5</b>	<b>STEAM TURBINE PACKAGE</b>			
5.1	ONE (1) STEAM TURBINE (FOR TWO SETS OF GAS TURBINE) AND AUXILIARIES			
	Steam Turbine	√		
	Acoustical enclosure	√		

	Stop and control valves	√		
	Admission valves	√		
	By pass valves	√		
	Exhaust hood system	√		
	Steam sealing system	√		
	Gland sealing system	√		
	Turning Gear	√		
	Turbine drain system	√		
	Lube oil system	√		
	Hydraulic oil system	√		
	Insulation	√		
5.2	ELECTRICAL SYSTEMS AND EQUIPMENT			
	Excitation system	√		
	AC Motor Control Centre's	√		Incorporated in plant MCC
	DC Panel Board	√		
5.3	GENERATOR & AUXILIARIES			
	Generator	√		
	Generator circuit breaker	√		Generator Circuit Braker shall be installed on both side of ST generator
	Generator isolated phase bus duct	√		
	Generator neutral grounding cubicle	√		
5.4	CONTROL AND INSTRUMENTATION	√		Controlled by DCS
	Turbine Control System	√		Two remote operator WS should be provided in Electrical and Control Building Control room for operators and one WS in Engineering Room. All WS's 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).  ST/STG HMI all corresponding screens should be prepared in DCS for monitoring of ST/STG process values.
	Generator Control System	√		
	Turbine & Generator Protection System	√		
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
6.2	HV SWITCHGEAR/SUBSTATION	√		
6.3	HV OHL BETWEEN GRID AND CCPP	√		

6.4	TRANSFORMERS			
	Generator Step up Transformers for GTG	√		
	Generator Step up Transformer for STG	√		
	Unit Auxiliary Transformers	√		
	Station Auxiliary Transformers	√		
6.5	MEDIUM VOLTAGE SWITCHGEARS	√		
6.6	LOW VOLTAGE SWITCHGEARS	√		
6.7	MCC PANELS	√		
6.8	AC DISTRIBUTION SYSTEMS	√		
6.9	DC SUPPLY AND UPS SYSTEM	√		
6.10	GENERATOR CONNECTIONS	√		
6.11	PROTECTION RELAYING SYSTEM	√		
6.12	ELECTRICAL MONITORING SYSTEM	√		Should be consider in SCADA altogether, 500 KV Switchyard, 6.3 KV Switch bord for Incomers, Tie breaker, SAT breakers & 380 Volts Switch board operation incoomers, Ties breakers, MV motors and etc. also, it shall be operated from DCS.
6.13	ELECTRICITY TARIFF METERING	√		
6.14	CABLES AND RACEWAY/DUCT BANK SYSTEM	√		
6.15	GROUNDING SYSTEM	√		
6.16	POWER PLANT LIGHTING			
	Road lighting	√		
	Building lighting	√		
	Equipment lighting	√		
6.17	COMMUNICATION SYSTEM	√		Within plant area telephone and internet system.
6.18	ALARM, ACCESS CONTROL, PUBLIC ADDRESS, CCTV AND SECURITY SYSTEMS	√		
6.19	EMERGENCY DIESEL GENERATOR	√		
6.20	BLACK START DIESEL GENERATOR	√		With a grid (national) rebuild complete function

6.21	CATHODIC PROTECTION AND HEAT TRACING (for all necessary pipe and vessel facilities)	√		
<b>7</b>	<b>INSTRUMENTATION &amp; CONTROL SYSTEM</b>			
7.1	DCS	√		
	Large screen display	√		3x55" and 1x70" Displays
	Programmable Logic Computers	√		
	Relaying/metering/protection	√		
	RTU/SCADA system	√		
7.2	LOCAL INSTRUMENTS AND CABLES	√		
7.3	PLC	√		Auxiliary system.
<b>8</b>	<b>SCOPE OF SUPPLY - BALANCE OF PLANT "MECHANICAL"</b>			
8.1	FUEL SYSTEM (NATURAL GAS)			
	Fuel Gas Pipe Line from Main line tie-in point to GPRMS		√	
	Gas Pressure Reducing, Regulation and Metering Station (GPRMS)		√	
	Gas Pipeline from GPRMS to plant	√		
	Natural Gas Compressor Station with Canopy	√		Gas compressor electrical engines should be equipped with soft starter unit and EPC contractor should calculate and identify appropriate soft start device to balance compressor electrical engine power factor parameter to avoid disturbance in system.
	Gas Regulatory Station (RMS)	√		Inside Plant. Shall have ability to work without regulation (Using bypass)
	GT Fuel Auxiliary System	√		
	Fuel Gas Piping within the Site Boundary	√		
8.2	RAW WATER SUPPLY SYSTEM			
	Settling Pond construction	√		Capacity Should be defined by engineer based on plant water volume requirements.



	Raw Water piping and pump station (with canopy)	√		
	All other required equipment, Connection Piping, Valves, and Piping Fittings	√		
8.3	RAW WATER TREATMENT SYSTEM			Shall be built by the Contractor.
	Flocculator	√		Design should be done according sample analysis results, taken in accordance of standards and canal water turbidity level
	Service Water Pump	√		
	All required equipment/facilities Connection Piping, Valves, and Piping Fittings	√		
8.4	DEMINERALIZED WATER TREATMENT SYSTEM			
	Two demineralized water transfer pumps	√		
	Demineralized water storage tank	√		As per relevant standards.
	Intermediate product tanks	√		As per relevant standards.
	Acid and Caustic Tanks	√		As per relevant standards.
	All required equipment/facility, connection Piping, piping fittings, valves, instruments, and controls	√		
8.5	COOLING WATER SYSTEM			
	Mechanical Induced Draft Cooling Tower	√		
	Circulating Water Pump	√		
	Circulating Water Chemical Dosing Skid	√		
	All required equipment/facilities, Connection Piping, Valves, and Piping Fittings	√		
8.6	CLOSED COOLING WATER SYSTEM			
	Auxiliary coolers & Auxiliary cooling water expansion tank	√		As per relevant standards.
	Heat Exchanger	√		
	CCW Circulation Pumps	√		
	All required equipment/facilities, Connection Piping, Valves, and Piping Fittings	√		
8.7	WASTE WATER TREATMENT			

	Sewage Treatment Plant	√		The Contractor's scope is to install sewage system within the site boundary and pipeline from the Site boundary to the existing waste water treatment plant (X 504011.766; Y 4589494.926)
	Sanitary Lift Station	√		
	Oily Wastewater Separator System	√		
	Waste Water Collection Pit	√		
	Waste Water Transfer Pump	√		
	Connection Piping, Valves, and Piping Fittings	√		
8.8	POTABLE WATER SYSTEM			
	Potable water pipeline	√		Tie-in (X 503512.961; Y 4589518.387)
	Potable Water Storage Tank	√		
	Potable Water Supply Pump	√		
	Connection Piping, Valves, and Piping Fittings	√		
8.9	MAIN STEAM SYSTEM			
	HP steam system	√		
	LP steam system	√		
8.10	CONDENSATE SYSTEM	√		
8.11	CONDENSER AIR REMOVAL SYSTEM	√		
8.12	BOILER FEED WATER SYSTEM	√		
	Boiler feed water pumps	√		
	Piping, valves, and instrumentation	√		
8.13	CHEMICAL INJECTION & DOSING SYSTEM	√		
8.14	STEAM AND WATER SAMPLING AND ANALYSIS	√		
8.15	BOILER BLOW-DOWN SYSTEM	√		
8.16	STEAM BYPASS SYSTEM	√		
8.17	INSTRUMENT AIR SYSTEM	√		
8.18	SERVICE AIR SYSTEM	√		
	Air Compressor	√		Configuration 3X100%
8.19	Nitrogen Generation System	√		

8.20	FIRE PROTECTION SYSTEM	√		
	Fire Hydrant System	√		
	Carbon Dioxide System	√		For GT
	Water Spray System	√		
	Portable Fire Extinguishers	√		
	Firefighting Pumps	√		
	Fire Water Ring Main Piping	√		
	Fire Detection System	√		
8.21	PAINTING AND INSULATION	√		
8.22	HVAC SYSTEM	√		
8.23	CRANES AND HOISTS	√		
8.24	LABORATORY TOOLS AND APPARATUS	√		
8.25	PIPING SYSTEM	√		
8.26	PLANT DRAIN SYSTEM	√		
<b>9</b>	<b>OTHERS</b>			
9.1	WORKSHOP EQUIPMENT		√	
9.2	I & C WORKSHOP EQUIPMENT		√	
9.3	FUEL SYSTEM (NATURAL GAS) ANALYSIS	√		Analysis required to determine composition and LHV of fuel gas to ensure proper design of the plant
9.4	ALL OTHER REQUIRED EQUIPMENT, CONNECTION PIPING, VALVES, AND PIPING FITTINGS, CABLING ETC.	√		
9.5	GENERAL SYSTEMS PROGRAMS AND SOFTWARE	√		Last Available Versions
9.6	FINAL VENDOR LIST AND CONTACT DETAILS for all installed equipment	√		Final vendor list is required in order to enable the Employer to purchase spares.
9.7	CONTINUOUS EMISSION MONITORING SYSTEM	√		

## 5. DOCUMENTS FOR APPROVAL OR REVIEW BY THE EMPLOYER

### 5.1 GENERAL

Drawings and documentation shall be detailed and complete to ensure that the Power Plant will conform to the Employer's requirements and also enable the design requirements to be fully implemented during the procurement and site construction phases. All drawings and documentation submitted shall:

- Reference and be compatible with all interface drawings
- be no larger than A0, however standard A2 size is preferred, in case A2 is not readable, original size will be submitted
- contain a project specific Title Block; and the specific format to be discussed and agreed by both Employer and Contractor show specific revision changes to facilitate effective tracking and review
- be provided in both AutoCAD.dwg and searchable PDF versions incl. "as built" drawings.

### 5.2 SUBMISSION DISTRIBUTION AND FORMAT

Design drawings, calculation reports and other document submissions shall be clearly legible and transmitted in both English and Georgian Language or bilingual Georgian-English. Submission shall be by electronic copy (in searchable PDF format and AutoCAD.dwg (2004 or higher version)

for drawings), with parallel hardcopy - from 2 to 5 hard copies as requested by Employer. Provided that for Employer's review and approval submission will be only in electronic copy followed by hard copies after approval. All electronic submissions shall be printable without special software or required significant conversion. Scanned documents are not acceptable, except of the cases when it is unavoidable and necessary. In the event of conflict between the electronic and hard copy submission, the hard copy shall prevail.

Technical data lists for Equipment, Instruments, Cables, etc., and Bill of Materials, included in the documents should be in EXCEL format.

The CONTRACTOR shall arrange for the efficient distribution of contract documentation to enable the timely review of the project engineering design by the Employer and/or the Employer's Representative.

Documents (drawings, instructions and manuals) shall be of such quality and with such legibility that hardcopy reproductions may be prepared by the Employer with every line, character and letter clearly legible and usable for further reproduction.

Documents shall be searchable.

The preliminary 'Document Listing' is summarized below which gives the main categories of documentation.

Document List	Submittal Time from the Contract sign date. <i>(Mentioned submittal times are for 1st Version/Issue of the Document)</i>
Engineering Deliverable List ( <b>For Review</b> )	30 days – Preliminary 90 days – Final

Project Level 2 Schedule <b><u>(For Approval)</u></b>	60 days
Project Level 3 Schedule <b><u>(For Review)</u></b>	2 months look ahead Level 3 Schedule to be submitted with monthly reports.
Design Drawings & Calculations <b>(For Approval)</b>	Progressively
General Layout – Plot Plan <b><u>(For Approval)</u></b>	15 days
Electrical Single Line Diagram <b>(For Approval)</b>	30 days
Flow Diagrams <b><u>(For Approval)</u></b>	75 days
P&IDs <b><u>(For Approval)</u></b>	90 days
Materials Specification's <b>(For Approval)</b>	Progressively
Plant Major Equipment Specifications <b>(For Review)</b>	20 days prior to order
Controls and DCS Architecture <b><u>(For Approval)</u></b>	Progressively
Building Architecture <b><u>(For Approval)</u></b>	Progressively
Building Standards and Codes to be used <b><u>(For Approval)</u></b>	Progressively
Detailed Layouts and Arrangement Drawings <b><u>(For Approval)</u></b>	Progressively
Wiring Diagrams <b><u>(For Approval)</u></b>	Progressively
Monthly Progress Report <b><u>(For Review)</u></b>	Progressively
Vendor List (Final vendor list is required in order to enable the Employer to purchase spares.) <b><u>(For Review)</u></b>	Progressively
Construction Procedures <b>(For Approval)</b>	Progressively
Project Management Plans (HS, ENV, Waste Management, QA/QC, Pre-commissioning & commissioning) <b>(For Approval)</b>	Prior to commencement of the construction.
Project Quality Plan <b><u>(For Approval)</u></b>	60 days
Detailed ITPs & Test Procedures <b><u>(For Approval)</u></b>	30 days prior draft procedures, 15 days prior final procedures prior to commencement of the related tests and activities
List of consumables and spare parts for operation purposes <b>(For Review)</b>	No later than 12 months before completion of construction
Commissioning and Testing Schedule incl. firm amounts of natural gas required <b>(For Review)</b>	6 months prior to commissioning
As Built Drawings <b><u>(For Review)</u></b>	Within 30 days after Take Over
O&M Manuals <b><u>(For Approval)</u></b>  The final issue of the-Operation & Maintenance Manuals (specific to the as built Gardabani 3 power plant) reviewed by the Employer and the Employer's Representative in 5(five) printed copies and 1 (one) electronic file (CD).	No later than 42 days from submission of Taking-Over Certificate
O&M Manufacturers Manuals <b><u>(For Review)</u></b>  For each Plant equipment delivered on site.	No later than 14 days from delivery on site

### **5.3 DOCUMENTATION REVIEW AND APPROVAL**

The Employer's or Employer's Representative's review or approval on Contractor's Documents shall not relieve the CONTRACTOR of its obligation to meet the requirements of the Contract (whether this be the Technical Specification, Plant Functionality or Guarantees).

Response time for Document Review by the Employer shall be 14 working days from date of receipt of the document electronic copy. Electronic copies will be submitted by e-mail and/or by FTP server.

The Employer shall make every effort to make the review in a shorter time than 14 working days and in particular in the event that the CONTRACTOR highlights where specific documents are critical for early review. Comments may be provided to the CONTRACTOR either by email and/or fax with comments listed or by marked up drawing with accompanying cover-note. The Cover-Note shall state that the Contractor's Documents complies with the Contract, or the extent to which it does not comply. If Contractor's Document fails to comply, it shall be rectified, resubmitted and reviewed in accordance with the turnaround time specified above. For each part of the works, execution of such part of the works shall not commence prior to the approval of Contractor's Documents by the Employer or Employer's Representative. If the Contractor wishes to modify any design document which has previously been approved, the Contractor shall immediately give notice to the Employer. Thereafter, the Contractor shall submit revised documents to the Employer in accordance with the above approval procedure.

Detailed Document - communication, review and approval procedure (including numbering and coding) shall be provided during Engineering Design.

## Specification of Requirements

### For JSC Georgian Oil and Gas Corporation to Connect Gardabani Thermal Plant-3, a Combined Cycle Thermal Power Plant (CCTPP) in Gardabani Municipality, to the Power Grid

JSC Georgia Electrosystem is not against of connection by JSC Georgian Oil and Gas Corporation of Gardabani Thermal Plant-3, a 276.1 MW (Gross) Combined Cycle Thermal Power Plant (CCTPP) in Gardabani Municipality (X= 504593; Y=4589422), to the Power Grid subject to the following requirements:

1. The Applicant to select a site and build the relevant plant of the required capacity (276.1 MW) and a 500/11-kV substation, with all the necessary equipment and devices;
2. A designated space to be allocated in S/S Gardabani-500 to set up a 500-kV line bay with all the necessary modern equipment and devices
3. A 500-kV single-circuit power transmission line (OHL) to be built between the line bay to be set up in the 500-kV switchgear of S/S Gardabani-500 and the design S/S 500/11 kV to be built by the Applicant;
4. The route, length, wire type, grade and section of the to-be-built 500-kV OHL to be ascertained at the design phase;
5. The route of the to-be-built 500-kV OHL to be agreed with the relevant organization(s);
6. The scope of reconstruction-restoration works to be determined at the design phase;
7. The 500-kV 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/S Gardabani-500; the digital protection terminals that entail a digital protection relay (at both ends of the line) shall have the following functional capabilities:

#### **Protection Set I**

- Differential protection (with optical communication);
- 5 remote protection zones;
- 4-step residual current protection;
- Maximum current protection;
- Emergency current protection (with two interphase steps and two zero steps);
- Breaker backup;
- 3-phase automatic changeover switch;
- 1-phase automatic changeover switch;
- Remote and local control of the bay;
- Fault site identification;
- Logging and storing emergency records and oscillograms;
- Synchronism detection;
- Communication facility;
- Time synchronization.

#### **Protection Set II**

- Differential protection (with optical communication);
- 5 remote protection zones;
- 4-step residual current protection;

- Maximum current protection;
  - Emergency current protection (with two interphase steps and two zero steps);
  - Breaker backup;
  - 3-phase automatic changeover switch;
  - 1-phase automatic changeover switch;
  - Remote and local control of the bay;
  - Fault site identification;
  - Logging and storing emergency records and oscillograms;
  - Synchronism detection;
  - Communication facility;
  - Time synchronization.
8. GSE to report the relay protection settings of the to-be-built 500-kV power transmission line (OHL) in S/S Gardabani-500;
  9. All connections to Gardabani Thermal Plant-3 to be equipped with modern digital protection and control devices, the relay protection settings of each element to be reported [to] and agreed with GSE;
  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 synchronized vector measuring system must transmit data to S/S Gardabani-500 subject to the requirements of IEEE C37.118 provided, however, the port(s) of the PMU(s) and communication device(s) is/are not used for other purposes and are physically isolated from other networks;
    - The time synchronization of the synchronized phasor measurement system must be carried out through GPS.
    - 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;
    - PMUs in the synchronized phasor measurement system must be capable of reporting messages in the performance classes P and M);
    - PMUs used in the synchronized phasor measurement system must be capable of reporting at the rate of 50 messages per second;
    - For each unit, the synchronized phasor measurement system must measure the following parameters:
      - Y-voltage and phase-lag angle of the all the generator status' threephases;
      - Phase current and phase-lag angle of the all the generator status' three phases;
      - Generator stator voltage frequency;
      - Generator stator voltage frequency variation rate;
      - Field voltage;
      - Field current;
      - Generator breaker state (discreet signals – breaker on / off);
      - Unit (transformer) breaker state (discreet signals – breaker on / off);
      - Turbine
      - Guide vane position (analogous signal equivalent to the guide vane opening/closing range of 0-100%).



- The synchronized phasor measurement system must measure the following parameters for the 500-kV Overhead power transmission line:
    - Y-voltage and phase-lag angle of the all the three phases;
    - Phase current and phase-lag angle of the all the three phases;
    - Voltage frequency;
    - Voltage frequency variation rate;
    - State of breaker(s) (discreet signals – breaker on / off).
11. Within no later than 10 (ten) business days prior to the examination by the commission, after the design has been agreed, the Applicant shall present:
- List of relay protection and automation equipment protocols;
  - Protocol of testing the relay protection and automation equipment under the agreed design;
  - Documents attested to by the company (according to the map of the settings of the EPP connections) stating that the settings agreed with GSE have been provided in the relay protection and automation equipment).
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:
- To allocate, in the line of the control and protection cabinet(s) of each unit, space for an ECA cabinet, to which the following must be brought:
    - Respective cables to be connected to the protection precision class coils of the current and voltage transformers connected to the generator stator circuit (technical details to be agreed at the design phase);
    - Respective cables to be connected to the interlocks of the generator breaker and transformer unit breaker (technical details to be agreed at the design phase);
    - Respective cables to be connected to the shutdown circuit of the generator breaker or transformer unit breaker (technical details to be agreed at the design phase)
    - Cables to the DC and AC power supplies (technical details to be agreed at the design phase).
  - To allocate, in the line of the control and protection cabinet(s) of the 500-kV power transmission line (OHL), space for an ECA cabinet, to which the following must be brought:
    - Respective cables to be connected to the interlocks of the 500-kV power transmission line (OHL) breaker, bus switch and line isolating switch (technical details to be agreed at the design phase);
    - Cables to the DC and AC power supplies (technical details to be agreed at the design phase).
13. Automatic regulation of revolutions per minute (frequency) on the generators;
14. The frequency regulator must have the ability to adjust the statism coefficient droop within the range of 2%-8%;
15. The power plant must have ability to participate in Frequency Containment Reserves (FCR) and thus
- a. the power activation/deactivation speed must be  $\geq 3\% P_{nom}/s$  [ $180\%P_{nom}/min$ ];
  - b. the value of primary reserve shall be no more than  $12\%P_{nom}$  In a limited period of time determined by Balancing Market;
16. The PP must be capable of taking part in Frequency Restoration Reserves(FRR):
- a. The plant turndown with minimum load of  $21\%P_{nom}$  up to 6 hours per day;

- b. Stable working ability within 21-100%P<sub>nom</sub>.
- 17. The PP must be capable of taking part in Replacement Reserves(RR):
- 18. The generator drive governor must be capable of operating in a forced mode for at least 10 seconds.
- 19. The generator drive system must be equipped with a Power System Stabilizer(PSS);
- 20. The PP must be capable of:
  - a. generating reactive power
  - b. consuming reactive power
- 21. The generator drive system must have the following operating modes:
  - a. Voltage control mode (V);
  - b. Reactive power control mode (Q);
  - c. Power factor control mode (cosf);
- 22. The nominal power factor of the PP must be less than 0.85 (cosf<0.85);
- 23. The PP must be capable of operating within the following frequencies in the relevant periods of time:

47.0 – 47.5 Hz 20 sec
47.5 – 48.5 Hz 30 min
48.5 – 49.0 Hz 60 min
49.0 – 51.0 indefinitely
51.0 – 51.5 Hz 30 min
51.5 – 52.5 Hz 30 sec
52.5 – 53.0 Hz 10 sec

- 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 45.0 Hz – 55.0 Hz;
- 25. The PP must be capable of operating within the following voltage limits:
 

0.85 – 0.90 pu 60 min
0.90 – 1.12 pu indefinitely
1.12 – 1.15 pu 20 min
- 26. The PP must be capable of withstanding the frequency derivative, i.e., maintaining a parallel operation with the system:
  - if the frequency derivative value does not exceed 1.5 Hz/sec (measured in a 200 ms time interval by a 20 ms increment) and, in addition,
  - The network frequency does not exceed 50.75 Hz.
- 27. The PP must have a start black-start capability:
  - a. cold start – in maximum 2 hours;
  - b. warm start – in at least 1 hour;
  - c. hot start – in at least 35 minutes.
- 28. The PP gas turbine must have ability to operate autonomously;
- 29. Maximum power loss resulting from the deactivation of one unit of PP must be less than 50% of the total power generation (<50%);
- 30. The number of PP activations must not exceed 270 per year; in addition, it shall have the ability of 50 urgent switch off during a year and 3 urgent switches off a day using system automatic.
- 31. The design specifications for each of the PP generators, excitation systems, speed control

- systems, power system stabilizers (PSS) must be presented to be approved by GSE;
32. Must be integrated into the Emergency Control System and be capable of withstanding sudden (emergency) blackouts without being damaged;
  33. Frequency and voltage ramping settings must be agreed with GSE;
  34. The details of the functional capabilities of the relay protection and automation equipment to be agreed and specified with GSE on the design phase;
  35. In S/S Gardabani 500, the digital relay(s) of the newly added bay must be fully integrated into the Station Control and Monitoring System (SCMS), i.e. SCADA, Level 2 (this involves setting up digital relays, integrating them into the SS communication network, integrating them into the existing SIEMENS GW&HMI control and monitoring system, updating them and testing (including locking) them. Technical details to be agreed at the design phase;
  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:
    - **On the one hand**, instead of the earthing cable, the following must be mounted from portal to portal of the 500-kV power transmission line (OHL) to be built between Gardabani CCTPP-3 and S/S Gardabani-500: OPGW optic-fiber cable with single mode (SM) optic cores. On the premises of both substations, the communication line from the portal joint box to the telecommunications cabinet must be set up using a ground dielectric SM optic-fiber cable with Rodent Protection, double protective layer, placed in a corrugated plastic pipe. The cables in the telecommunications cabinets in both substations must be terminated with an optic distribution frame (ODF).  
**Note:** if the OPGW cable cannot be built along the entire route of the 500-kV overhead PTL to be erected because it would cross any other existing overhead PTLs, the need for arranging ground dielectric optic-fiber cable sections from pole to pole at such cross points must be provided for.
    - **On the other hand**, a ground dielectric SM optic-fiber cable with Rodent Protection, double protective layer, placed in a corrugated plastic pipe must be buried between the telecommunications cabinets in the Gardabani CCTPP-3 and S/S Gardabani-500 control buildings. At both ends, the cable in the telecommunications cabinets must be terminated with an optic distribution frame (ODF).
  37. The optic cores of the optic-fiber cable must comply with ITU-T G.652D Recommendation Link;
  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;
  39. The quantity of the specific materials required for the construction of the OPGW optic-fiber cable, ground dielectric optic-fiber cable as well as the precise technical details of equipment to be agreed at the detailed design phase;
  40. A Station Control and Monitoring System (SCMS), i.e. SCADA, Level III, must be set up to provide remote control and monitoring (National Control Center) of the design PP/SS power equipment. The system must ensure exchange of telecommunications of the PP (all connections) with National Control Center using the communication elements of SCADA, Level I;

The SCADA, Level I communication elements may include:

- GW (GateWay), a data collection and transmission equipment between the PP and National Control Center to collect information, transmit it to SCADA, Level I for PP control;
  - ICON multiplexor. Tele protection and Automatic Emergency Control for OHL;
  - L3 switches – to connect the design PP to the communication network of the current SCADA, Level I.
41. The design PP must be provided with at least two telephones for personnel on duty to maintain direct communication with National Control Center;
  42. Support shall be provided (the participation of the relevant G3 engineer in preparing the configuration of SCADA, Level I communication element to ensure mutual compatibility on a protocol level) during the Remote Control and Monitoring configuration/testing;
  43. The SCADA, Level I communication elements in the design PP must be accommodated in secure space with micro climate.
  44. Uninterrupted power supply must be provided for the SCADA, Level I communication elements in the design PP;
  45. An electricity billing meter to be installed for the line bay to be set up in the 500-kV switchgear of S/S Gardabani-500;
  46. A control electricity meter to be installed for the line bay of the 500-kV OHL (connecting to S/S Gardabani-500) in Gardabani TPP-3;
  47. Technical meters to be installed on the PP generators, auxiliary power transformers and at the points defined by Article 66.6, Chapter 8 of the Network Rules
  48. The Applicant to prepare the design to set up the billing meter and connecting it to an upper Electric current control and metering system and dully agree it with GSE before commencing the works, provided the field works are performed according to this agreed design;
  49. The design to set up the control and technical meters and connecting them to an upper Electric current control and metering system to be prepared by GSE, provided the field works are performed according to this agreed design;
  50. The meters identified at paragraphs 45, 46 and 47 of these Requirements must be set up in compliance with the respective requirements of all the normative acts applicable in Georgia, including (but not limited to):
    - a) respective requirements of Chapter 8 (Metering Procedure) of the Network Rules approved by Resolution №10, 17.04.2014 of the Georgian National Energy and Water Supply Regulatory Commission as well as any other applicable industry requirements related to metering.
    - b) respective requirements of the Technical Regulation on Approval of the Rules of Operation of Electric Power Plants and Networks (Government of Resolution №434, 13 December 2013), including (but not limited to) Article 56;
    - c) respective requirements of the Rules of Operation of Electric Power Plants and Networks (approved by Order №52, 4 October 2010 of the Minister of Energy of Georgia), including (but not limited to) Article 56;
  51. In the course of designing and setting up the network and during the operation of the facility, the requirements of the Rules for Setting up Electric Installations, the Rules for Delivering and Consuming Electricity (Electric Power), the Safety Rules, the Network Rules, and other normative acts applicable in Georgia must be fully complied with;
  52. What with disturbances arising in the power grid for a variety of reasons, limitations may apply subject to the emergency control requirements of GSE;
  53. The Applicant's design documentation for connecting the TPP to the power grid to be developed subject to these the technical requirements, and submitted to GSE for approval;
  54. The Applicant may conduct the works under the design only after the design has been approved;

55. If these technical requirements are not complied with in full, GSE shall be released from responsibility for a reliable connection of the design SS, TPP and OHL to the power grid;
56. Before the facility is connected to the power transmission network, the Applicant shall submit all the primary and secondary electrical equipment measurement protocols issued by an accredited person for the Applicant's SS, TPP and OHL (the protocols to give an opinion on the serviceability of equipment). The Applicant must submit the required protocols at least 10 business days prior to the examination by the commission.
57. The facility to be connected to the electrical network after the Commission for Examination of Works for Compliance with Requirements has conducted an onsite inspection and issued a Commission Report.

**Note:**

*1. EPC contractor is obliged to submit completed technical project within 3 (three) months after the signing of the contract to GSE. The project must be accompanied by all relevant documents required by the GSE including plans, diagrams and other drawings, also Project shall be expertised and conclusion must be provided. The project of connection to the transmission network and the attached documentation must be submitted to the GSE in Georgian language, both in material (printed) and in electronic versions.*

*2. In case of 500kv underground transmission line is chosen, EPC contractor is responsible to prepare a comprehensive study for connection of PP to the substation "Gardabani-500", which should include both technical issues related to the construction of the cable line and the issues of its reliability of substation. It is also advisable to study the planned inspections and the possibilities and conditions for emergency situations.*

*EPC Contractor must submit Above mentioned Study to GSE no later than 2 (two) months after the signing of the contract.*

*Within 1 (one) month from the submission of the Study, GSE will review the results of the Study and in case the underground cable is acceptable for operational, technical, dispatching and other topics, GSE confirms the suitability and written confirmation will be issued which shall include additional GSE requirements and conditions regarding the cable line arrangement.*

# Split of Obligations

No.	Task	Responsible	
		Contractor	GSE
1	The Applicant to select a site and build the relevant plant of the required capacity (276.1 MW Gross) and a 500/11-kV substation, with all the necessary equipment and devices;	√	
2	A designated space to be allocated in S/S Gardabani-500 to set up a 500-kV line bay with all the necessary modern equipment and devices		√
3	A 500-kV single-circuit power transmission line (OHL) to be built between the line bay to be set up in the 500-kV switchgear of S/S Gardabani-500 and the design S/S 500/11 kV to be built by the Applicant;	√	
4	The route, length, wire type, grade and section of the to-be-built 500-kV OHL to be ascertained at the design phase;	√	
5	The route of the to-be-built 500-kV OHL to be agreed with the relevant organization(s);	√	
6	The scope of reconstruction-restoration works to be determined at the design phase;	√	√
7	<p>The 500-kV 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/S Gardabani-500; the digital protection terminals that entail a digital protection relay (at both ends of the line) shall have the following functional capabilities:</p> <p><b>Protection Set I</b></p> <ul style="list-style-type: none"> <li>· Differential protection (with optical communication);</li> <li>· 5 remote protection zones;</li> <li>· 4-step residual current protection;</li> <li>· Maximum current protection;</li> <li>· Emergency current protection (with two interphase steps and two zero steps);</li> <li>· Breaker backup;</li> <li>· 3-phase automatic changeover switch;</li> <li>· 1-phase automatic changeover switch;</li> <li>· Remote and local control of the bay;</li> <li>· Fault site identification;</li> <li>· Logging and storing emergency records and oscillograms;</li> <li>· Synchronism detection;</li> <li>· Communication facility;</li> <li>· Time synchronization.</li> </ul> <p><b>Protection Set II</b></p> <ul style="list-style-type: none"> <li>· Differential protection (with optical communication);</li> <li>· 5 remote protection zones;</li> <li>· 4-step residual current protection;</li> <li>· Maximum current protection;</li> <li>· Emergency current protection (with two interphase steps and two zero steps);</li> <li>· Breaker backup;</li> <li>· 3-phase automatic changeover switch;</li> <li>· 1-phase automatic changeover switch;</li> <li>· Remote and local control of the bay;</li> <li>· Fault site identification;</li> <li>· Logging and storing emergency records and oscillograms;</li> <li>· Synchronism detection;</li> <li>· Communication facility;</li> <li>· Time synchronization.</li> </ul>		√
8	GSE to report the relay protection settings of the to-be-built 500-kV power transmission line (OHL) in S/S Gardabani-500;		√

9	All connections to Gardabani Thermal Plant-3 to be equipped with modern digital protection and control devices, the relay protection settings of each element to be reported [to] and agreed with GSE;	✓	
10	<p>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:</p> <ul style="list-style-type: none"> <li>· The synchronized vector measuring system must transmit data to S/S Gardabani-500 subject to the requirements of IEEE C37.118 provided, however, the port(s) of the PMU(s) and communication device(s) is/are not used for other purposes and are physically isolated from other networks;</li> <li>· The time synchronization of the synchronized phasor measurement system must be carried out through GPS.</li> <li>· 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;</li> <li>· PMUs in the synchronized phasor measurement system must be capable of reporting messages in the performance classes P and M);</li> <li>· PMUs used in the synchronized phasor measurement system must be capable of reporting at the rate of 50 messages per second;</li> <li>· For each unit, the synchronized phasor measurement system must measure the following parameters: <ul style="list-style-type: none"> <li>o Y-voltage and phase-lag angle of the all the generator status' three phases;</li> <li>o Phase current and phase-lag angle of the all the generator status' three phases;</li> <li>o Generator stator voltage frequency;</li> <li>o Generator stator voltage frequency variation rate;</li> <li>o Field voltage;</li> <li>o Field current;</li> <li>o Generator breaker state (discrete signals – breaker on / off);</li> <li>o Unit (transformer) breaker state (discrete signals – breaker on / off);</li> <li>o Turbine</li> <li>o Guide vane position (analogous signal equivalent to the guide vane opening/closing range of 0-100%).</li> </ul> </li> <li>· The synchronized phasor measurement system must measure the following parameters for the 500-kV Overhead power transmission line: <ul style="list-style-type: none"> <li>o Y-voltage and phase-lag angle of the all the three phases;</li> <li>o Phase current and phase-lag angle of the all the three phases;</li> <li>o Voltage frequency;</li> <li>o Voltage frequency variation rate;</li> <li>o State of breaker(s) (discrete signals – breaker on / off).</li> </ul> </li> </ul>	✓	
11	<p>Within no later than 10 (ten) business days prior to the examination by the commission, after the design has been agreed, the Applicant shall present:</p> <ul style="list-style-type: none"> <li>· List of relay protection and automation equipment protocols;</li> <li>· Protocol of testing the relay protection and automation equipment under the agreed design;</li> <li>· Documents attested to by the company (according to the map of the settings of the EPP connections) stating that the settings agreed with GSE have been provided in the relay protection and automation equipment).</li> </ul>	✓	
12	<p>In Gardabani Thermal Plant-3, GSE will ensure the arrangement of Emergency Control Automatics (ECA), for which purpose the User shall ensure the following:</p> <ul style="list-style-type: none"> <li>· To allocate, in the line of the control and protection cabinet(s) of each unit, space for an ECA cabinet, to which the following must be brought: <ul style="list-style-type: none"> <li>o Respective cables to be connected to the protection precision class coils of the current and voltage transformers connected to the generator stator circuit (technical details to be agreed at the design phase);</li> <li>o Respective cables to be connected to the interlocks of the generator breaker and transformer unit breaker (technical details to be agreed at the design phase);</li> <li>o Respective cables to be connected to the shutdown circuit of the generator breaker or transformer unit breaker (technical details to be agreed at the design phase)</li> <li>o Cables to the DC and AC power supplies (technical details to be agreed at the design phase).</li> </ul> </li> <li>· To allocate, in the line of the control and protection cabinet(s) of the 500-kV power transmission line (OHL), space for an ECA cabinet, to which the following must be brought: <ul style="list-style-type: none"> <li>o Respective cables to be connected to the interlocks of the 500-kV power transmission line (OHL) breaker, bus switch and line isolating switch (technical details to be agreed at the design phase);</li> <li>o Cables to the DC and AC power supplies (technical details to be agreed at the design phase).</li> </ul> </li> </ul>		✓
13	Automatic regulation of revolutions per minute (frequency) on the generators;	✓	
14	The frequency regulator must have the ability to adjust the static coefficient droop within the range of 2%-8%;	✓	
15	<p>The power plant must have ability to participate in Frequency Containment Reserves (FCR) and thus</p> <ol style="list-style-type: none"> <li>a. the power activation/deactivation speed must be <math>\geq 3\% P_{nom}/s</math> [<math>180\% P_{nom}/min</math>];</li> <li>b. the value of primary reserve shall be no more than <math>12\% P_{nom}</math> in a limited period of time determined by Balancing Market;</li> </ol>	✓	
16	<p>The PP must be capable of taking part in Frequency Restoration Reserves (FRR):</p> <ol style="list-style-type: none"> <li>a. The plant turndown with minimum load of <math>21\% P_{nom}</math> up to 6 hours per day;</li> <li>b. Stable working ability within <math>21-100\% P_{nom}</math>.</li> </ol>	✓	

17	The PP must be capable of taking part in Replacement Reserves (RR);	✓	
18	The generator drive governor must be capable of operating in a forced mode for at least 10 seconds.	✓	
19	The generator drive system must be equipped with a Power System Stabilizer (PSS);	✓	
20	The PP must be capable of: a. generating reactive power b. consuming reactive power	✓	
21	The generator drive system must have the following operating modes: a. Voltage control mode (V); b. Reactive power control mode (Q); c. Power factor control mode (cosf);	✓	
22	The nominal power factor of the PP must be less than 0.85 (cosf<0.85);	✓	
23	The PP must be capable of operating within the following frequencies in the relevant periods of time: 47.0 – 47.5 Hz 20 sec 47.5 – 48.5 Hz 30 min 48.5 – 49.0 Hz 60 min 49.0 – 51.0 indefinitely 51.0 – 51.5 Hz 30 min 51.5 – 52.5 Hz 30 sec 52.5 – 53.0 Hz 10 sec	✓	
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 45.0 Hz – 55.0 Hz;	✓	
25	The PP must be capable of operating within the following voltage limits: 0.85 – 0.90 pu 60 min 0.90 – 1.12 pu indefinitely 1.12 – 1.15 pu 20 min	✓	
26	The PP must be capable of withstanding the frequency derivative, i.e., maintaining a parallel operation with the system: · if the frequency derivative value does not exceed 1.5 Hz/sec (measured in a 200 ms time interval by a 20 ms increment) and, in addition, · The network frequency does not exceed 50.75 Hz.	✓	
27	The PP must have a start black-start capability: a. cold start – in maximum 2 hours; b. warm start – in at least 1 hour; c. hot start – in at least 35 minutes.	✓	
28	The PP gas turbine must have ability to operate autonomously;	✓	
29	Maximum power loss resulting from the deactivation of one unit of PP must be less than 50% of the total power generation (<50%);	✓	
30	The number of PP activations must not exceed 270 per year; in addition, it shall have the ability of 50 urgent switch off during a year and 3 urgent switches off a day using system automatic.	✓	
31	The design specifications for each of the PP generators, excitation systems, speed control systems, power system stabilizers (PSS) must be presented to be approved by GSE;	✓	
32	Must be integrated into the Emergency Control System and be capable of withstanding sudden (emergency) blackouts without being damaged;	✓	
33	Frequency and voltage ramping settings must be agreed with GSE;	✓	
34	The details of the functional capabilities of the relay protection and automation equipment to be agreed and specified with GSE on the design phase;	✓	
35	In S/S Gardabani 500, the digital relay(s) of the newly added bay must be fully integrated into the Station Control and Monitoring System (SCMS), i.e. SCADA, Level 2 (this involves setting up digital relays, integrating them into the SS communication network, integrating them into the existing SIEMENS GW&HMI control and monitoring system, updating them and testing (including locking) them. Technical details to be agreed at the design phase;		✓
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: · <b>On the one hand</b> , instead of the earthing cable, the following must be mounted from portal to portal of the 500-kV power transmission line (OHL) to be built between Gardabani CCTPP-3 and S/S Gardabani-500: OPGW optic-fiber cable with single mode (SM) optic cores. On the premises of both substations, the communication line from the portal joint box to the telecommunications cabinet must be set up using a ground dielectric SM optic-fiber cable with Rodent Protection, double protective layer, placed in a corrugated plastic pipe. The cables in the telecommunications cabinets in both substations must be terminated with an optic distribution frame (ODF). <b>Note:</b> if the OPGW cable cannot be built along the entire route of the 500-kV overhead PTL to be erected because it would cross any other existing overhead PTLs, the need for arranging ground dielectric optic-fiber cable sections from pole to pole at such cross points must be provided for. · <b>On the other hand</b> , a ground dielectric SM optic-fiber cable with Rodent Protection, double protective layer, placed in a corrugated plastic pipe must be buried between the telecommunications cabinets in the Gardabani CCTPP-3 and S/S Gardabani-500 control buildings. At both ends, the cable in the telecommunications cabinets must be terminated with an optic distribution frame (ODF).	✓	



37	The optic cores of the optic-fiber cable must comply with ITU-T G.652D Recommendation Link;	✓	
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;	✓	
39	The quantity of the specific materials required for the construction of the OPGW optic-fiber cable, ground dielectric optic-fiber cable as well as the precise technical details of equipment to be agreed at the detailed design phase;	✓	
40	A Station Control and Monitoring System (SCMS), i.e. SCADA, Level III, must be set up to provide remote control and monitoring (National Control Center) of the design PP/SS power equipment. The system must ensure exchange of telecommunications of the PP (all connections) with National Control Center using the communication elements of SCADA, Level I; The SCADA, Level I communication elements may include: · GW (GateWay), a data collection and transmission equipment between the PP and National Control Center to collect information, transmit it to SCADA, Level I for PP control; · ICON multiplexor. Tele protection and Automatic Emergency Control for OHL; · L3 switches – to connect the design PP to the communication network of the current SCADA, Level I.	✓	
41	The design PP must be provided with at least two telephones for personnel on duty to maintain direct communication with National Control Center;	✓	
42	Support shall be provided (the participation of the relevant G3 engineer in preparing the configuration of SCADA, Level I communication element to ensure mutual compatibility on a protocol level) during the Remote Control and Monitoring configuration/testing;	✓	
43	The SCADA, Level I communication elements in the design PP must be accommodated in secure space with micro climate.	✓	
44	Uninterrupted power supply must be provided for the SCADA, Level I communication elements in the design PP;	✓	
45	An electricity billing meter to be installed for the line bay to be set up in the 500-kV switchgear of S/S Gardabani-500;		✓
46	A control electricity meter to be installed for the line bay of the 500-kV OHL (connecting to S/S Gardabani-500) in Gardabani TPP-3;	✓	
47	Technical meters to be installed on the PP generators, auxiliary power transformers and at the points defined by Article 66.6, Chapter 8 of the Network Rules	✓	
48	The Applicant to prepare the design to set up the billing meter and connecting it to an upper Electric current control and metering system and dully agree it with GSE before commencing the works, provided the field works are performed according to this agreed design;		✓
49	The design to set up the control and technical meters and connecting them to an upper Electric current control and metering system to be prepared by GSE, provided the field works are performed according to this agreed design;	✓	
50	The meters identified at paragraphs 45, 46 and 47 of these Requirements must be set up in compliance with the respective requirements of all the normative acts applicable in Georgia, including (but not limited to): a) respective requirements of Chapter 8 (Metering Procedure) of the Network Rules approved by Resolution №10, 17.04.2014 of the Georgian National Energy and Water Supply Regulatory Commission as well as any other applicable industry requirements related to metering. b) respective requirements of the Technical Regulation on Approval of the Rules of Operation of Electric Power Plants and Networks (Government of Resolution №434, 13 December 2013), including (but not limited to) Article 56; c) respective requirements of the Rules of Operation of Electric Power Plants and Networks (approved by Order №52, 4 October 2010 of the Minister of Energy of Georgia), including (but not limited to) Article 56;	✓	✓
51	In the course of designing and setting up the network and during the operation of the facility, the requirements of the Rules for Setting up Electric Installations, the Rules for Delivering and Consuming Electricity (Electric Power), the Safety Rules, the Network Rules, and other normative acts applicable in Georgia must be fully complied with;	✓	✓
52	What with disturbances arising in the power grid for a variety of reasons, limitations may apply subject to the emergency control requirements of GSE;	✓	✓
53	The Applicant's design documentation for connecting the TPP to the power grid to be developed subject to these the technical requirements, and submitted to GSE for approval;	✓	
54	The Applicant may conduct the works under the design only after the design has been approved;	✓	
55	If these technical requirements are not complied with in full, GSE shall be released from responsibility for a reliable connection of the design SS, TPP and OHL to the power grid;	✓	✓
56	Before the facility is connected to the power transmission network, the Applicant shall submit all the primary and secondary electrical equipment measurement protocols issued by an accredited person for the Applicant's SS, TPP and OHL (the protocols to given an opinion on the serviceability of equipment). The Applicant must submit the required protocols at least 10 business days prior to the examination by the commission.	✓	
57	The facility to be connected to the electrical network after the Commission for Examination of Works for Compliance with Requirements has conducted an onsite inspection and issued a Commission Report.	✓	✓

## **Facility Structures on the design territory of Gardabani CCTPP**

### **Terms of Reference**

#### **Main parameters and key technical solutions of the facilities**

##### **1. Administrative Office Building and Security Buildings**

Number of floors – two-floor building and basement;

Building dimensions: length 46 m, width 16 m;

The following must be located on the first floor of the building:

- Reception;
- Dining-room for 50 persons;
- Locker room with 30 lockers;
- Shower room – toilet;
- Two hotel type rooms with WC;
- Two rooms (one for server and IT staff);
- Relaxation room for staff;
- Storage and utility premises;
- Ventilation, fire and other equipment assembly room.

The following must be located on the second floor of the building:

- One office room for the manager, secretary room with the reception and communication with the meeting room;
- Meeting room;
- Three office rooms (large);
- Ten office rooms (small);
- Relaxation room for staff;
- Kitchen area;

- Archives;
- At least 2 WCs

The following must be located on the basement of the building:

- Various storage and utility rooms, in agreement with the Purchaser.

Security staff building:

- One floor;
- 2 rooms;
- WC;
- 4 (four) security guard towers with the minimum height of 5 m must be arranged on the territory;

Other parameters of the building to be designed shall be defined on the basis of the calculation, in agreement with the Purchaser.

### **General technical solutions**

Building type

- Frame – reinforced concrete structure;
- Walls – small-size building blocks;
- Insulation of the structure should be considered;

The building must be equipped with:

- Power supply and water supply systems;
- Sewage system;
- HVAC (heating/ventilation/air conditioning) system;
- Fire protection system;
- Communication lines: telephone connection, Internet, security sensor and surveillance systems.

The design shall be developed on the basis of conducting of engineering-geodesic, engineering-geologic and engineering-hydrometeorological reconnaissance works.

## **2. Main warehouse**

- One-floor thermally insulated structure of rectangular shape;
- Dimensions not more than 40 x 50 m (to be defined more precisely during the design);
- Structure height – 12 m (to be defined more precisely during the design);
- The foundation type to be selected on the basis of the geological-engineering studies;
- Frame type – metal structure;
- The structure must be stainless steel factory-made sandwich panels;
- Stainless steel shelves in six rows along the length of the warehouse;
- The floor must be made of reinforced concrete, with smooth/shiny surface;
- The structure must have three large-size and four small-size doors (passages for trucks, personnel and emergency exits);
- Electricity and lighting network must be provided;
- The structure must be equipped with a ventilation system to keep the internal space dry;
- Fire hydrants must be provided in the vicinity of the structure and fire alarm system must be arranged in the internal space;
- Openable windows must be made on the walls of the structure and rain shutters shall be installed on the external façade;
- A lifting crane with lifting capacity of at least 10 tons must be installed in the internal space of the structure to ensure relocation of freight within the storage room (so-called overhead crane);

## **3. Chemicals Warehouse**

- One-floor thermally insulated structure of rectangular shape;
- 500 m<sup>2</sup> (to be defined more precisely during the design);
- Structure height – 8 m (to be defined more precisely during the design);
- The foundation type to be selected on the basis of the geological-engineering studies;
- Frame type – metal structure;
- The structure must be stainless steel factory-made sandwich panels;
- The floor must be made of reinforced concrete, with smooth/shiny surface;
- The structure must have one large-size and three small-size doors (passages for trucks, personnel and emergency exits);
- Electricity and lighting network must be provided;
- The structure must be equipped with a ventilation system to keep the internal space dry;

- Fire hydrants must be provided in the vicinity of the structure and fire alarm system must be arranged in the internal space;
- Openable windows must be made on the walls of the structure and rain shutters shall be installed on the external façade;
- A lifting crane with lifting capacity of at least 5 tons must be installed in the internal space of the structure to ensure relocation of freight within the storage room (so-called overhead crane);
- Two separate, independent storage room must be arranged inside the internal perimeter of the Warehouse;

#### **4. Shelter warehouse**

- One-floor thermally insulated structure of rectangular shape;
- 500 m<sup>2</sup> (to be defined more precisely during the design);
- Structure height – 6 m (to be defined more precisely during the design);
- The foundation type to be selected on the basis of the geological-engineering studies;
- Frame type – metal structure;
- The structure must be covered by stainless steel factory-made sheet panels;
- The perimeter of the structure must be clad by stainless-steel factory-made mesh panels;
- The floor must be made of reinforced concrete;
- The structure must have two large-size and two small-size doors made of stainless steel factory-made mesh panels (passages for trucks, personnel and emergency exits);
- Electricity and lighting network must be provided;
- Fire hydrants must be provided in the vicinity of the structure and fire alarm system must be arranged in the internal space;
- A lifting crane with lifting capacity of at least 3 tons must be installed in the internal space of the structure to ensure relocation of freight within the storage room (so-called overhead crane);

#### **5. Workshop**

- One-floor thermally insulated structure of rectangular shape;
- Dimensions not more than 20 x 35 m (to be defined more precisely during the design);
- Structure height – 12 m (to be defined more precisely during the design);
- The foundation type to be selected on the basis of the geological-engineering studies;
- Frame type – metal structure;
- The structure must be stainless steel factory-made sandwich panels;
- Stainless steel shelves shall be arranged in one row along the length of the workshop;
- The floor must be made of reinforced concrete with smooth/shiny surface;
- The structure must have one large-size and four small-size doors (passages for trucks, personnel and emergency exits);

- Electricity, lighting and Internet network must be provided;
- The structure must be equipped with HVAC (heating/ventilation/air conditioning) system;
- Fire hydrants must be provided in the vicinity of the structure and fire alarm system must be arranged in the internal space;
- The workshop must be provided with water and sewage system;
- Openable windows must be made on the walls of the structure and rain shutters shall be installed on the external façade;
- A lifting crane with lifting capacity of at least 10 tons must be installed in the internal space of the structure to ensure relocation of freight within the workshop (so-called overhead crane);
- Three independent office rooms, two shower room-toilets and locker-room with 10 lockers must be provided in the internal space of the workshop;
- The structure must be provided with electricity and lighting network;

## **6. Laboratory (Incl. Tools and Equipments)**

- One-floor thermally insulated structure of rectangular shape;
- Dimensions not more than 15 x15 m (to be defined more precisely during the design);
- The laboratory shall be modular in design, enabling easy change of arrangement wherever applicable;
- Structure height – 5 m (to be defined more precisely during the design);
- The foundation type to be selected on the basis of the geological-engineering studies;
- Frame type – reinforced concrete;
- The structure must have two small-size doors (personnel and emergency exits);
- Electricity, lighting and Internet network must be provided;
- The structure must be equipped with heating/air conditioning system which must keep temperature within 18-28°C;
- The structure must be provided with water and sewage system;
- Openable windows must be made on the walls of the structure and rain shutters shall be installed on the external façade;
- Four independent office rooms must be provided in the internal space of the structure;
- The structure must be provided with electricity and lighting network;
- The structure must be provided with a ventilation system;
- The structure must be provided with a moisture absorption equipment (to be defined more precisely during the design);

**Extract From  
Resolution of the Government of  
Georgia No. 257  
May 31, 2019  
Tbilisi**

**On the procedure of issuing a construction permit for facilities of special importance  
(except construction of radiation and nuclear facilities) and permit conditions**

**Article 31. Architectural design, structural and technological scheme**

1. Pursuant to this Resolution, the second stage of issuing a construction permit is to approve the architectural design, structural and/or technological scheme.  
For approval of the architectural-construction design, the permit seeker must submit the architectural design and/or if required, structural scheme and/or technological scheme.
2. In cases defined by the Resolution, as well as upon request of the Agency, the permit seeker shall submit the structural scheme and/or technological scheme at the second stage of issuing a construction permit.

**Article 32. Content of the architectural design**

1. Architectural design of a building (structure) includes:
  - a) Information about the facility subject to construction permit which includes:
    - a.a) title page, name and address of the facility;
    - a.b) list of sheets;
    - a.c) used conventional signs;
    - a.d) explanatory note containing description of the designing purposes:
      - a.d.a) basis and purposes of designing;
      - a.d.b) written description of the land parcel;
      - a.d.c) contextual description of the design;
      - a.d.d) description of the main structural system of the building (structure);
      - a.d.e) description of the legislation used for designing;
    - a.e) technical data of the building (structure):
      - a.e.a) area of the land parcel;
      - a.e.b) size of the used K1 and development area;
      - a.e.c) size of the used K2 and development density area, showing the development area of each floor;
      - a.e.d) size of the used K3 and the landscaping area;
      - a.e.e) area of the building (structure), including, if any, area of the residential house; apartment area(s); office premises; trade and household service area(s); production area; storehouse area; staircase and entrance areas; summer areas (balconies, terraces, verandas and loggias);

- b) analysis of compliance with "Building and Structure Safety Rules" for buildings and structures;
  - b.a) occupancy and description of each use;
  - b.b) structure type(s);
  - b.c) height limitations;
  - b.d) area limitations;
  - b.e) requirements to the external wall openings;
  - b.f) requirements to passages;
  - b.g) requirements to fire protection systems;
  - b.h) requirements to fixtures of the water supply system;
  - b.i) other requirements, if applicable.
- c) situational plan – scale 1:2000 or 1:1000;
- d) photo material reflecting the current situation (distant and close-up views, specifying the date)
- e) land parcel layout (specifying the coordinates) – scale 1:500 or 1:250:
  - e.a) land parcel layout shown on the land parcel topographical plan;
  - e.b) location and heights of buildings and structures;
  - e.c) land parcel access roads and domestic motor roads, parking lots, pathways, bicycle path, landscaping, improvement etc.;
  - e.d) if required, household waste container placement scheme;
  - e.e) in case of change of the ground surface, the ground surface change plan;
  - e.f) surface water removal scheme;
- f) floor layouts at all levels and the roof layout – scale 1:200, 1:100 and/or 1:50:
  - f.a) layout of all floors and roof of the building, showing the cadaster border projection, floor surface elevations, ground elevation of the building (structure) in respect to the absolute ground elevation;
  - f.b) the building floor layouts must provide information about the basic floor sizes, room and/or space areas and their basic sizes as well as the basic sizes of passages;
  - f.c) furniture and/or other location layouts – in accordance with the Resolution of Georgia No. 41 dated January 28, 2016 "On approval of the Technical Regulations – Building and Structure Safety Rules";
- g) lateral and/or longitudinal section(s) of buildings and structures – scale 1:200, 1:100 and/or 1:50:
  - g.a) sections of buildings and structures, must contain at least the ground surface elevations and the building and structure ground elevation in respect to the absolute ground elevation;
  - g.b) used materials, at the discretion of the permit seeker;
  - g.c) significant parts and/or details, at the discretion of the permit seeker – scale 1:20, 1:10 and/or 1:5;
- h) all facades of the building and structure – scale 1:200, 1:100 and/or 1:50:
  - h.a) materials and colors used on the façade;
  - h.b) in case of existence of adjacent buildings, layouts – scale 1:500 and/or 1:200;
  - h.c) significant parts and/or details of the façade – scale 1:20, 1:10 and/or 1:5;
- i) occupancy and passage layouts for buildings and structures – scale 1:200 and/or 1:100:
  - i.a) occupancy loads;
  - i.b) road-stair and other passage throughputs;
  - i.c) passages, access to passages, passways and exits from the building;
  - i.d) maximum distances to be covered to the passage;



- i.e) access route;
- i.f) if required, shelter areas;
- i.g) if required, other requirements;
- j) compliance of road-stairs, entrance ramps, banisters and door handles for buildings and structures with Building and Structure Safety Rules in the form of drawings – scale 1:50 and/or 1:20;
- k) fire protection plans for buildings and structures – scale 1:200
  - k.a) requested quality fire-resistance delimiters;
  - k.b) used fire protection systems;
  - k.c) other requirements, if required;
- l) building and structure facades in special construction regulation zones and historic protection zones where their basic dimensions, heights, including heights between floors must be specified, showing the ground crossing levels in respect to the absolute ground elevation, specifying the sizes of all openings and architectural details on the façade, façade (reference surface) drawings, showing schematic drawings of building facades (reference surfaces) located on the adjacent land parcels (for example, street layout); composite photographs and axonometric views defining architectural details, finishing-construction materials and colors (both in printed and digital form, showing all kinds of finishing materials, windows, stained-glass windows, banisters or other architectural elements used on facades in detail (including, showing the place of location of heating-air conditioning technical facilities), as well as the used paint color by RGB or RAL codes;
- m) if required, mockup and/or referenced view(s) and/or composite photographs;
- n) on the territory of Tbilisi, land parcel landscaping design as well, which together with other data must also contain the following information:
  - n.a) K-3 coefficient area;
  - n.b) types of green plantings to be planted (including, description – age, height);
  - n.c) landscaping design completion date;
  - n.d) person responsible for care of the planted green plantings;
  - n.e) length of care of the planted green plantings;
- o) on the territory of Tbilisi, road traffic organization scheme showing the transport/road infrastructure of the design territory, showing connection to the survey territory;
- p) additional material at the discretion of the permit seeker.

2. Parts of the architectural design defined by paragraph one of this Article may be submitted in a combined form.

3. In case of submission in a printed form - the architectural design must be submitted folded in A-4 format, stitched up in the binder /filer.

### **Article 33. Content of the structural scheme**

1. In case of construction of structures (including, linear structures), the structural scheme includes:

- a) explanatory note;
- b) land parcel layout (where location of structures on land parcel(s) is shown in a physical context);

- c) ground surface change plan (if any) for the territory required for the structure(s);
- d) identification of ground elevation and reference to the absolute ground elevation;
- e) schematic drawings of views/facades;
- f) sections characterizing the structure(s);
- g) layouts of all floors (if any) of the building.

2. By decision of the Client, the structural scheme may additionally include:

- a) photos of the territory;
- b) digital visualization and/or mockup.

3. Parts of the structural scheme defined by paragraph one of this Article may be submitted in a combined form, folded in A-4 format, stitched up in the binder /filer.

#### **Article 34. Content of the technological scheme**

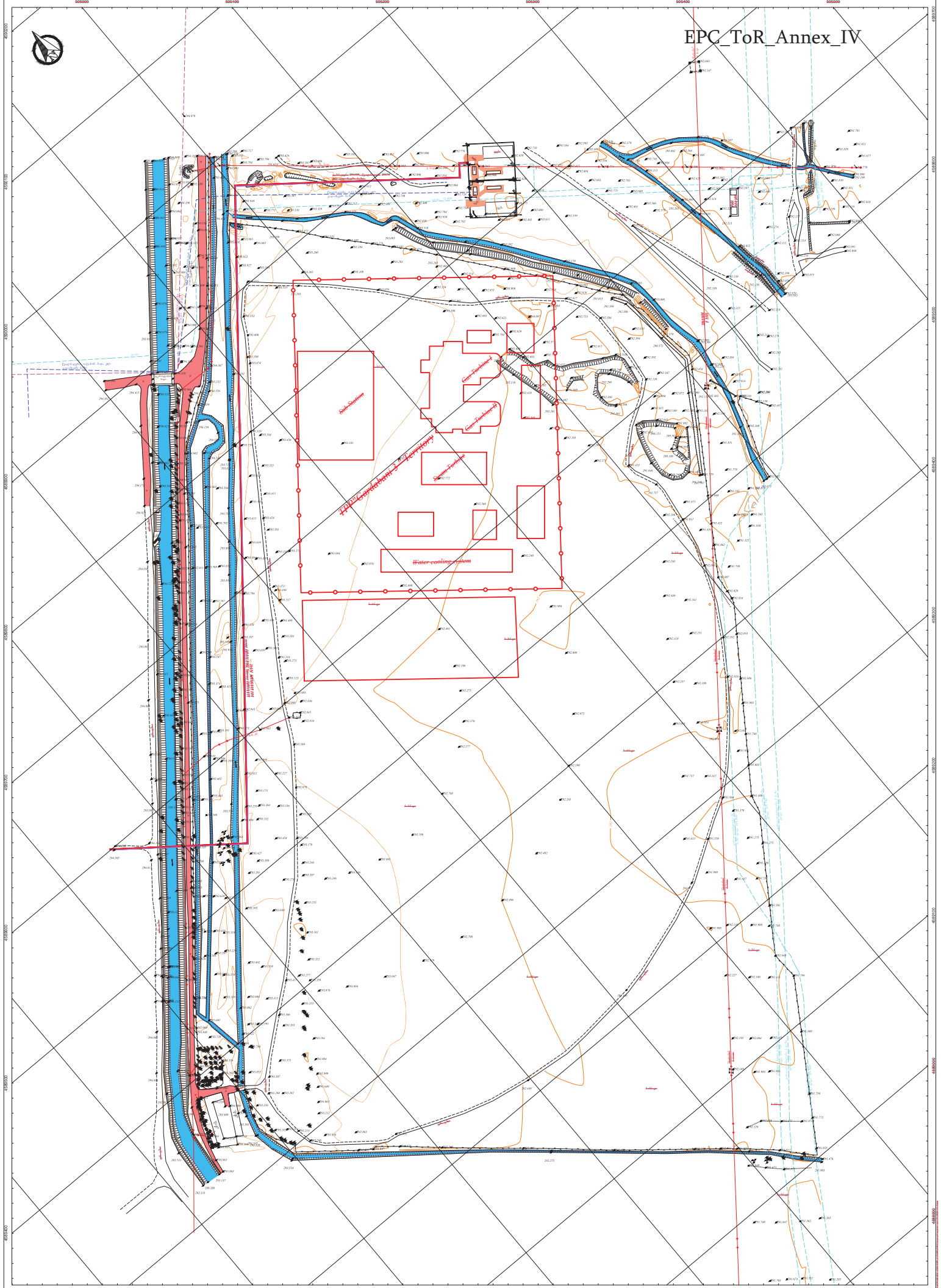
1. Technological scheme includes:

- a) explanatory note;
- b) land parcel layout (where location of structures on land parcel(s) is shown in a physical context);
- c) ground surface change plan (if any) for the territory required for the structure(s);
- d) identification of ground elevation and reference to the absolute ground elevation;
- e) schematic drawings of facades (reference surfaces);
- f) sections characterizing the structure(s);
- g) technological scheme of the respective production process(es);
- h) layouts of all floors (if any) of the building.

2. By decision of the Client, the technological scheme may additionally include:

- a) photos of the territory;
- b) digital visualization and/or mockup.

3. Parts of the technological scheme defined by paragraph one of this Article may be submitted folded in A-4 format, stitched up in the binder /filer.



Project Name	Geographical Location
Client	Contractor
Scale	Sheet No.

Project Name	Geographical Location
Client	Contractor
Scale	Sheet No.

**EXHIBIT B - PRICING****1 BREAK-DOWN OF PRICES**

- 1.1 The amounts indicated in the line items 1, 2 and 5 - for the 1st, 2nd and 3rd PHASES of CONSULTANCY SERVICES - of the below break-down of prices constitute all-inclusive fixed lump-sum amounts for the performance of relevant SERVICES and represents the CONSULTANT'S entire compensation for completing the activities of corresponding PHASES, as defined under TOR (EXHIBIT A), including remedying any defects.
- 1.2 The amounts indicated in the line items 3 and 4 – for kick-off and design review meetings; and factory inspection SERVICES - of the below break-down of prices, represents the sums of amounts due to be paid to CONSULTANT by EMPLOYER for performance of relevant SERVICES, which shall be calculated in accordance with provisions of Clauses 2 and 3 of EXHIBIT B.
- 1.3 The amounts indicated in Column 3 of the below table are provided in USD and shall be fixed to the Percentage Cap of the BID PRICE as defined in Column 2 of bellow table. The sums of amounts in Column 3 of the bellow table shall not exceed the BID PRICE.
- 1.4 The amounts indicated in below table includes all costs and expenses required to carry out the SERVICES and all Taxes levied on the SERVICES or imposed upon the CONSULTANT in connection with or as a result of carrying out the SERVICES, excluding VAT.

#	Description of Services	Percentage Cap of the BID PRICE (percentage)	Price in USD excl. VAT
Col. No	1	2	3
1	<b>1st PHASE of CONSULTANCY SERVICES</b> - as defined under TOR (EXHIBIT A), including relevant DELIVERABLES as per EXHIBIT D.	6%	
2	<b>2nd PHASE of CONSULTANCY SERVICES</b> - as defined under TOR (EXHIBIT A), including relevant DELIVERABLES as per EXHIBIT D.	80%	
3	<b>Price for Kick-off meetings, Design Review Meetings, Project Progress Review Meetings</b> - applicable to 1st and 2nd PHASES of CONSULTANCY SERVICES and indicating the sum of amounts as specified in Clause 2 of EXHIBIT B.	3%	
4	<b>Factory Inspection SERVICES</b> - applicable to 2nd PHASE of CONSULTANCY SERVICES and indicating the sum of amounts as specified in Clause 3 of EXHIBIT B.	4%	
5	<b>3rd PHASE of CONSULTANCY SERVICES</b> - as defined under TOR (EXHIBIT A), including relevant DELIVERABLES as per EXHIBIT D.	7%	
<b>TOTAL:</b>		<b>100%</b>	

**2 PRICE FOR KICK-OFF MEETINGS AND DESIGN REVIEW SESSIONS**

- 2.1 The amounts provided in the below table are inclusive but not limited to travel, accommodation, per diem allowances, local transport and any other applicable costs and expenses (except remuneration for CONTRACTOR'S PERSONNEL, which is included in line items 1 and/or 2 of the break-down table of prices in Clause 1 of EXHIBIT B) for the maximum quantity of PERSONNEL of CONSULTANT (See Column 3 of below table) and maximum duration/number of days (See Column 4 of below table) for each meeting, including travel time for the provided locations.
- 2.2 The amounts provided for the minimum number of meetings/trips (See Column 5 of bellow table) are applicable to locations as indicated (See Column 2) in the bellow table and sum of amounts included in the break-down of CONTRACT PRICE provided in Clause 1 of this EXHIBIT.

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#	Description/Mission	Location	Max. number of PERSONNEL per meeting/trip (person)	Max. duration (incl. travel & meeting days) per meeting/trip (days)	Min. No of meetings/trips (meeting/trip)	Price in USD excl. VAT
Col. No	1	2	3	4	5	6
1	Kick-off and/or ED Review meetings	Turkey	4	6	1	
		Georgia	4	4	1	
2	Detailed Design & CCTPP Project Progress Review Meetings (during Engineering, Procurement and Manufacturing phase of CCTPP Project)	Turkey	4	6	5	
		Georgia	2	4	8	
TOTAL:					15	

- 2.3 The schedule of meetings/trips shall be discussed and agreed by CONSULTANT and EMPLOYER jointly with the CONTRACTOR and included in the relevant section of the pre-agreed PROJECT EXECUTION PLAN, which can be amended from time to time based on updated CCTPP PROJECT schedule submitted by CONTRACTOR and/or meetings completed by CONSULTANT. The number of meetings per mission can be rearranged as requested by EMPLOYER and/or required based on progress of CCTPP PROJECT, provided however that the sum of the amounts does not change.
- 2.4 The unit price per each meeting/trip shall be calculated based on to the amount provided in Column 6, maximum and/or minimum limits as defined in Columns 5 to 3 and specific location (Column 2) per relevant line item in the table above and charged to the EMPLOYER in accordance to the actual number of meetings/trips completed, at specific location.
- 2.5 CONSULTANT, after completion of each meeting, shall present to EMPLOYER travel voucher and/or other supporting documentation and updated section of the PROJECT EXECUTION PLAN, illustrating the meeting(s) completed.
- 2.6 The amounts indicated in the above table are provided excluding regular Weekly, Monthly, Quarterly or other Meetings to be held by CONSULTANT at construction SITE of CCTPP PROJECT during the relevant implementation phased of CCTPP PROJECT, which applicable costs and expenses are included in prices provided for the 2nd and 3rd implementation PHASES of the CONSULTANCY SERVICES.

## Section 4 – CONTRACT

### 3 PRICE FOR FACTORY INSPECTION SERVICES

- 3.1 The amounts provided in the below table are inclusive but not limited to remuneration, travel, accommodation, allowances, and any other applicable costs and expenses for the maximum quantity of PERSONNEL of CONSULTANT and/or its SUBCONTRACTOR (See Column 2 of below table) and maximum duration/number of days (See Column 4 of below table) for inspection SERVICES, including travel time for the provided locations.
- 3.2 The amounts provided for the minimum number of visits for quality surveillance/inspection missions (See Column 3 of below table) are applicable to locations as indicated (See Column 1) in the below table and sum of amounts included in the break-down of CONTRACT PRICE provided in Clause 1 of EXHIBIT B.

N	Location of factory inspection	Max Number of PERSONNEL per visit	Min. No. of visits	Max duration per visit (days, including travel and inspection)	Max. total days for visit	Price in USD excl. VAT
<i>Col. N</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
1	Europe	1	5	3	15	
2	Americas	1	5	5	25	
3	Asia/Pacific	1	5	6	30	
<b>TOTAL</b>			<b>15</b>		<b>70</b>	

- 3.3 The schedule of visits for quality surveillance/inspection missions shall be discussed and agreed by CONSULTANT and EMPLOYER jointly with the CONTRACTOR and included in the relevant section of the pre-agreed PROJECT EXECUTION PLAN, which can be amended from time to time based on updated CCTPP PROJECT schedule submitted by CONTRACTOR and/or inspection missions completed by CONSULTANT. The number of visits per mission can be rearranged as requested by EMPLOYER and/or required based on progress of CCTPP PROJECT, provided however that the sum of the amounts (VAT excluded) does not exceed the total amount indicated in Column 6.
- 3.4 The unit price per each surveillance/inspection visit shall be calculated based on the amount provided in Column 6, maximum and/or minimum limits as defined in Columns 5 to 2 and specific location (Column 1) per relevant line item in the table above and charged to the EMPLOYER in accordance to the actual number of visits completed, at specific location.
- 3.5 CONSULTANT, after completion of each visit, shall present to EMPLOYER travel voucher and/or other supporting documentation and updated section of the PROJECT EXECUTION PLAN, illustrating the inspection mission(s) completed.
- 3.6 The amounts indicated in the above table are provided excluding quality surveillance/inspection activities to be conducted by CONSULTANT at construction SITE of CCTPP PROJECT during the relevant implementation phased of CCTPP PROJECT, which applicable costs and expenses are included in prices provided for the 2nd and 3rd implementation PHASES of the CONSULTANCY SERVICES.

**EXHIBIT C - PAYMENT SCHEDULE****1 PAYMENT SCHEDULE DURING THE 1ST & 2ND PHASES OF CONSULTANCY SERVICES**

- 1.1 The Payments from 1 to 3 inclusive, in the table of payments below, shall be made to CONSULTANT based on provisions for ADVANCE PAYMENTS of Sub-clause 12.2 and 12.3 of this CONTRACT.
- 1.2 The following Payments from 4 to 31 inclusive (during 28 (twenty-eight) months of the 2nd PHASE of CONSULTANCY SERVICES, as provided in Sub-Clause 6.1(b) of the CONTRACT) are calculated based on sum of price for the 2nd PHASE of CONSULTANCY SERVICES indicated as line item 2 of break-down table of prices in Clause 1 of EXHIBIT B of the CONTRACT and shall be made on monthly basis in equal installment.
- 1.3 The deductible proportionate amounts for the repayment of ADVANCE PAYMENT amounts shall be calculated (i) in the amount of 40% of the respective payment for the 1st PHASE of CONSULTANCY SERVICES and (ii) in the amount of 10% of the respective payments in equal instalment for the 2nd PHASE of CONSULTANCY SERVICES, considering the VAT on the top.

#	%	Price in USD excl. VAT	
Payments for the 1st PHASE of CONSULTANCY SERVICES			
Payment 1	2.40%		
Payment 2	3.60%		
TOTAL:	6.00%		
Payments for the 2nd PHASE of CONSULTANCY SERVICES			
Payment 3	8%		
Payment 4	2.571%		
Payment 5	2.571%		
Payment 6	2.571%		
Payment 7	2.571%		
Payment 8	2.571%		
Payment 9	2.571%		
Payment 10	2.571%		
Payment 11	2.571%		
Payment 12	2.571%		
Payment 13	2.571%		
Payment 14	2.571%		
Payment 15	2.571%		
Payment 16	2.571%		
Payment 17	2.571%		
Payment 18	2.571%		
Payment 19	2.571%		
Payment 20	2.571%		
Payment 21	2.571%		
Payment 22	2.571%		
Payment 23	2.571%		
Payment 24	2.571%		
Payment 25	2.571%		
Payment 26	2.571%		
Payment 27	2.571%		

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Payment 28	2.571%		
Payment 29	2.571%		
Payment 30	2.571%		
Payment 31	2.571%		
<b>TOTAL:</b>	<b>80.00%</b>		

### 2 PAYMENT SCHEDULE DURING 3RD PHASE OF CONSULTANCY SERVICES

- 2.1 The payments during 24 (twenty-four) months of the 3rd PHASE of CONSULTANCY SERVICES, as provided in Sub-Clause 6.1(c) of the CONTRACT, shall be made on quarterly basis in equal installment as follows and calculated based on sum of price for the 3rd PHASE of CONSULTANCY SERVICES indicated as line item 5 of break-down table of prices in Clause 1 of EXHIBIT B of the CONTRACT:

#	%	Price in USD excl. VAT
Payment 1	0.875%	
Payment 2	0.875%	
Payment 3	0.875%	
Payment 4	0.875%	
Payment 5	0.875%	
Payment 6	0.875%	
Payment 7	0.875%	
Payment 8	0.875%	
<b>TOTAL:</b>	<b>7%</b>	

### 3 PAYMENTS DUE TO EXTENSION OF SERVICE PERIOD

- 3.1 The payments applicable due to extension of SERVICE PERIOD, as per conditions set forth in Sub-Clause 12.3.7 of the CONTRACT, shall be made on monthly basis in equal installment as follows:

In the event of:	Price in USD excl. VAT
a) variation of SERVICE PERIOD applicable to 2nd PHASE of CONSULTANCY SERVICES due to delay/extension of Completion of Works under EPC Contract	
b) variation of SERVICE PERIOD applicable to 3rd PHASE of CONSULTANCY SERVICES due to delay/extension of Defects Notification Period	



**EXHIBIT D - DELIVERABLES AND REPORTING REQUIREMENTS**

1. CONSULTANT shall prepare and submit for comments and/or acceptance (as appropriate) to the EMPLOYER, in accordance to the requirements of the TOR and provision of this CONTRACT, the DELIVERABLES of the SERVICES provided, including but not limited to:

<b>1st PHASE of CONSULTANCY SERVICES</b>		
a.	<u>PROJECT EXECUTION PLAN for CONSULTANCY SERVICES</u>	within 10 (ten) days after COMMENCEMENT DATE
b.	<u>Document and Data Management and Control System</u> – including relevant training and access for EMPLOYER'S PERSONNEL.	within 10 (ten) days after COMMENCEMENT DATE
c.	<u>Design Review Report on ED</u> – summarizing review comments issued on ED documents submitted by CONTRACTOR.	within REVIEW PERIOD after relevant documents submitted by CONTRACTOR by parts, sets or fully at once.
d.	<u>Expertise on ED</u> – final expert appraisal by licensed experts and/or specialists qualified in relevant technical fields/disciplines and registered at relevant state authorities of Georgia.	within 5 (five) days after Review Report on ED, in accordance to the requirements of Paragraph 2.3.5 TOR, issued by CONSULTANT and following the relevant request by EMPLOYER.
e.	<u>Review and comment on following documents:</u> Communication Procedure, Document Review & Approval Procedure, Document Format & Numbering Procedure and KKS Coding Guideline submitted by CONTRACTOR.	within 10 (ten) days after relevant request by EMPLOYER.
f.	<u>Review Report on Equipment Specifications and Vendor List for major equipment and/or components of CCTPP Plant</u> (as applicable) - to be proposed by CONTRACTOR and approved by Consultant.	within 14 (fourteen) days after submitted by CONTRACTOR.
g.	<u>Review Finding Report to the EPC Contract</u> – findings and comments to the EPC CONTRACT terms and conditions, including on Payment Schedule, shall be provided by CONSULTANT	within 20 (twenty) days after COMMENCEMENT DATE or after presented by EMPLOYER, whichever is latest.
h.	<u>Review of Technical Conditions (TC)</u> from Georgia State Electrosystem (GSE) to connect the Gardabani CCTPP to the grid.	within 10 (ten) days after COMMENCEMENT DATE and within 5 (five) days for each revision, if applicable.
i.	<u>Minutes of Meeting (MoM) during 1<sup>st</sup> PHASE OF CONSULTANCY SERVICE</u>	on regular bases and within 2 (two) BUSINESS DAY after the last date of the meeting.

<b>2nd PHASE of CONSULTANCY SERVICES</b>		
j.	<u>Design Review Reports of Design Documents other than ED</u> – summarizing review comments by CONSULTANT issued on design documents other than ED, submitted by CONTRACTOR by parts, sets or fully at once.	on regular bases, thought the Design Phase of CCTPP PROJECT, as submitted by CONTRACTOR, and within REVIEW PERIOD.
k.	<u>Review of Detailed Design (other than ED)</u>	on regular bases, and within 5 (five) days after the review of specific design document(s) submitted by CONTRACTOR completed, and following the relevant request by EMPLOYER.
l.	<u>Approval on completion of each Construction Phase of CCTPP PROJECT (as defined in Construction Permit from Relevant Authorities)</u> – approval (by signing together with EMPLOYER and CONTRACTOR, of relevant Act on Completion of Construction Phase) by licensed experts and/or specialists qualified in relevant technical fields/disciplines and registered at relevant state authorities of Georgia.	within 5 (five) days after completion of relevant Construction Phase of CCTPP Project and following the relevant request by EMPLOYER.

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m.	<u>Review Comments on CCTPP PROJECT SCHEDULE, procurement issues and time scheduling surveillance</u> – throughout the engineering, procurement and construction phases of CCTPP PROJECT	on regular bases, throughout the Supervision and Project Management activities under this CONTRACT, and within 14 (fourteen) days after submission by CONTRACTOR of updated CCTPP PROJECT SCHEDULE, procurement and/or other docs related to this scope.
n.	<u>Review and comment on Procedures, Guidelines, Manuals</u> submitted by CONTRACTOR - including, but not limited to Quality Assurance Plans and Procedures, Project Quality Plan, Detailed ITPs & Test Procedures, as defined in the TOR	within REVIEW PERIOD after submitted by CONTRACTOR.
o.	<u>Factory Inspection and Test Reports; Material Inspection Reports and Inspection Reports at construction SITE of CCTPP PROJECT</u> – as a part of quality surveillance services and in order to assure that quality, accuracy, workmanship and other characteristics are achieved and ensure that problems with equipment and/or materials are identified prior to shipment and/or after delivery to the construction SITE.	within 5 (five) days after pre-approved factory inspection assignment and/or after inspection at SITE upon delivery of equipment and/or materials;  In case of important findings, the inspector shall, as quickly as possible, notify CONSULTANT'S Quality Manager/Coordinator or Project Manager, either by phone or by e-mail, who shall immediately inform CONTRACTOR on the issue and the required corrective actions, followed by formal report issued and transmitted to CONTRACTOR within the aforementioned time frame.
p.	<u>Review and Comment on Spare Parts Lists and Recommended Major and Minor Routine Maintenance</u> – review findings on Start-up/Commissioning and Operations Spare Part List (for 2 year operation period) and schedules of recommended major and minor routine maintenance, as submitted by CONTRACTOR.	within 14 (fourteen) days after submitted by CONTRACTOR.
q.	<u>Weekly Status Reports</u> - for CCTPP construction SITE activities concentrating on progress achieved, main issues identified and recommendations on possible solutions and Punch List; describing all important activities witnessed by CONSULTANT at CTPP construction SITE during construction phase, erection, commissioning, troubleshooting and take-over processes, will it be technical, organizational or financial issues.  Apart from the Weekly Status Report, the specific reports related to changes or other inconsistencies that should be submitted as soon as the issue rises.	on weekly bases, at least 1 (one) day ahead of the weekly project coordination and/or other meetings with participation of CONSULTANT, EMPLOYER and CONTRACTOR.
r.	<u>Monthly Progress Reports</u> – focusing on the assessment by the CONSULTANT of achievements and progress of the EPC CONTRACTOR against the activities scheduled, including any deviations ascertained and recommendation for improvement, cost status, information on changes, transmittals, requests for information, etc. The Monthly Progress Reports shall summarize also design and other review findings, deliverables, inspection, status and other reports issued by CONSULTANT during the given period with relevant exhibits and appendices annexed thereto.	on monthly bases, within 7 (seven) days after the last day of the period to which it relates and at least 3 (three) days prior to the CCTPP PROJECT Progress meetings with participation of CONSULTANT, EMPLOYER and CONTRACTOR.
s.	<u>Review and Approval of Inspection and Test Plan (ITP) and Test Procedures</u>	within REVIEW PERIOD after submitted by CONTRACTOR.

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t.	<u>CCTPP Performance and Reliability Test Report</u>	within 5 (five) days after completion of relevant tests.
u.	<u>Final Works Completion Report</u> - including take over specifications, commissioning test reports and summarizing all the processes and actions performed regarding Design Review, Project Supervision and Management SERVICES; any modification came up during the implementation of CCTPP Project, defect remedying works completed for the give period, etc.	within 14 (fourteen) days after issuance of Take Over Certificate for Gardabani III CCTPP by CONTRACTOR and at least 3 (three) days prior to the CCTPP PROJECT Construction and Commissioning Completion Meeting.
v.	<u>Minutes of Meeting (MoM) during 2<sup>nd</sup> PHASE OF CONSULTANCY SERVICE</u>	on regular bases and within 2 (two) BUSINESS DAY after the last date of the meeting.

	<b>3rd PHASE of CONSULTANCY SERVICES</b>	
w.	<u>Status Report on Remedying Defects</u>	on monthly bases, within 7 (seven) days after the last day of the period to which it relates; applicable during the first 6 (six) months of 3 <sup>rd</sup> PHASE of CONSULTANCY SERVICE.
x.	<u>Quarterly Reports on Remedying Defects</u> – providing details on defects and relevant remedy works to be conducted by EPC CONTRACTOR and/or works that were already completed for rectifying those defects determined during previous assessment/checks.	on quarterly bases, within 7 (seven) days after the last day of the period to which it relates; applicable during the remaining 18 (eighteen) month of 3 <sup>rd</sup> PHASE of CONSULTANCY SERVICE.
y.	<u>Review and Comment on O&amp;M Manuals</u>	within REVIEW PERIOD after submitted by CONTRACTOR.
z.	<u>Review and Comment on a Program of Operators Training</u> – training to be conducted by CONTRACTOR	within 14 (fourteen) days after submitted by CONTRACTOR.
aa.	<u>Project Close Out Report</u> - summarizing all the processes and actions performed during the Defect Notification Period , review findings and comments to as built drawings and O&M Manuals and other documents submitted by CONTRACTOR; defect remedying works completed and any modification came up during the period, etc.	within 14 (fourteen) days after completion of Defect Notification Period and at least 3 (three) days prior to the CCTPP PROJECT Close Out Meeting.
bb.	<u>Minutes of Meeting (MoM) during 3rd PHASE OF CONSULTANCY SERVICE</u>	on regular bases and within 2 BUSINESS DAY after the last date of the meeting.

- CONSULTANT shall prepare and submit the ED Review Report, Monthly Progress and Status Reports, Quarterly Reports, Factory Inspection and Test Reports, Final Works Completion and Project Close out Reports (as listed in Sub-Clause 1 - items: c, o, r, u, w, x and aa - of EXHIBIT D of the CONTRACT) for the acceptance by the EMPLOYER together with relevant ACT OF ACCEPTANCE.
- The reports prepared by the CONSULTANT pursuant to Sub-Clause 2 of Exhibit D of the CONTRACT shall be submitted as electronic copy and 2 (two) hard copies (as may be required by the EMPLOYER).
- EMPLOYER shall approve or return each report, submitted by CONSULTANT as per Sub-Clause 2 of Exhibit D of the CONTRACT, with comments within 10 (ten) days after submission. The CONSULTANT shall re-submit the report within 3 (three) days after receipt of comments from the EMPLOYER. Within 5 (five) days after re-submission of report, and verifying from the submitted documents and satisfying himself that the respective SERVICES have been provided in full compliance with the CONTRACT, EMPLOYER shall sign the corresponding ACT OF ACCEPTANCE and provide to CONSULTANT. CONSULTANT shall submit the ACT OF ACCEPTANCE dully signed by both PARTIES, together with invoices issued pursuant to Sub-Clause 12.3 of the CONTRACT.
- For the avoidance of any doubts and notwithstanding anything to the contrary in this CONTRACT, the receipt of electronic copy of any report, deliverables or ACT OF ACCEPTANCE by EMPLOYER and CONTRACTOR, as defined under EXHIBIT D of the CONTRACT, shall be considered as delivered to either of PARTIES, if done pursuant to Sub-Clause 29.5 of the CONTRACT and signed by authorized REPRESENTATIVES of EMPLOYER and CONSULTANT.

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6. For the avoidance of any doubts, division of Consultancy Services into the Phases above shall no relieve the Consultant from liability to perform certain service during another Phase in case so instructed by the Employer.

#### EXHIBIT E - CONSULTANT PERSONNEL

##### List of proposed Key Personnel and Qualifications

Position	Name	Education/Certification	Languages	Experience	Reference Projects
<b>Office Personnel</b>					
Project Director/Manager					
Mechanical Engineers (GT; ST; HRSG; WSC; etc.)					
Mechanical Process – Steam Turbine					
Mechanical Process – Main Cooling Water System					
BOP Water Treatment					
Electrical Engineer					
Civil Engineer					
I&C Engineer					
Contracting Expert (LTSA and O&M)					
Financial Expert					
Environmental Expert					
<b>Site personnel</b>					
Site Manager					
Quality control and compliance director					
Expediting and Financial Controller					
Mechanical Engineer(GT/ST/HRSG/WSC)					
QA/QC Engineer (GT/ST/HRSG/WSC)					
Electrical Engineer					
Fire protection Engineer					
Civil Engineer					
Commissioning Engineer					
Local Commissioning Engineer					
I&C Engineer					
HSE Engineer					
Doc Controller					

## Section 4 – CONTRACT

### EXHIBIT F - ADVANCE PAYMENT BANK GUARANTEE/DRAFT

#### Unconditional and Irrevocable Bank Guarantee

Guarantor: .....  
(Name of issuer Bank)

Principal: .....  
(Consultant)

Beneficiary: Georgian Oil and Gas Corporation JSC (Employer)

We were informed that a *Contract* (number of date of Contract) (hereafter "Contract") was executed between the *Principal* and the *Beneficiary*, whereunder the *Principal* shall deliver/perform (name of object of procurement).

The terms and conditions of the above *Contract* provide for advance payment in the amount of \_\_\_\_\_ % of the cost for the (indicate the relevant Phase of Consultancy Services) of the *Contract* in case the *Principal* submits to the *Beneficiary* a Bank Guarantee for the amount equivalent to the requested advance payment, i.e. (amount in numbers and words) USD.

Considering all the above, please be informed that in case the *Principal* fails to fulfill its obligations under the terms and conditions of the *Contract*, the *Guarantor* unequivocally, irrevocably and unconditionally (for the avoidance of any doubts, the *Beneficiary* will not be required to prove grounds or reasons for the respective request, notwithstanding any objection by the *Principal*) undertakes to reimburse to the *Beneficiary* any amount or amounts, but not more than the equivalent of (amount in numbers and words) USD without any refusal and appeal within 5 working days upon receipt of the first written request from the *Beneficiary*. The amount (in national currency) to be reimbursed by the *Guarantor* shall in no case be less than the advance amount deposited by the *Beneficiary* in national currency into the *Principal's* bank account specified in this Guarantee on the basis of this Bank Guarantee (in case, principal is Georgian resident).

This Bank Guarantee shall become valid immediately upon after the advance amount – (amount in numbers and words) USD is fully deposited by the *Beneficiary* into the *Principal's* account (account number) in (name of Bank/Branch).

\*Validity period of the Guarantee: (specific date), Accordingly, this Guarantee shall be effective until the above date (inclusive). Any requests or claims proceeding from the above shall be received by the *Guarantor* prior to expiration of the validity period of the Bank Guarantee at the following address: (name of Bank/Branch, address).

Reimbursement request submitted by the *Beneficiary* shall be signed by the authorized person and sealed in writing, specifying the requested amount in numbers and words.

The guarantee amount shall be reduced: a) on the basis of written notification of the *Guarantor* by the *Beneficiary*, specifying the amount to be reduced under the Guarantee; b) by the amount paid by the *Guarantor* under the Guarantee.

The Bank Guarantee shall be automatically revoked

☒ when the validity period of the Bank Guarantee expires;

☒ in case of written waiver of the rights under the Guarantee by the *Beneficiary* and return of the original copy of the Bank Guarantee to the *Guarantor*.

Signature of Guarantors and Seal

\* Validity period of this Guarantee shall exceed completion of respective PHASE of the Consultancy Services, defined in the Contract, for at least 30 (thirty) calendar days.

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**EXHIBIT G - PERFORMANCE SECURITY BANK GUARANTEE (DRAFT)**

**Unconditional and Irrevocable Bank Guarantee**

Guarantor: .....  
(Name of issuer Bank)

Principal: .....  
(Consultant)

Beneficiary: Georgian Oil and Gas Corporation JSC (Employer)

RFP Number -----

*Bank* has been informed that ..... in accordance with the bid for the RFP N ..... undertook the responsibility to submit Performance Guarantee in *Employer's* favor, amounting up to ..... in order to cover the due fulfillment of *Contractor's* consequent contractual obligations.

In consideration of the aforesaid, we hereby guarantee and undertake at the first request of the Buyer, the Bank, hereby irrevocably and unconditionally, waiving all rights of objection, without the need to obtain a court sentence or Consultant's consent, to pay the *Employer* the amount not exceeding ....., in 5 calendar days upon receipt of Buyer's duly signed and stamped first written demand indicating the amount to be paid in numbers and words stating that the Consultant is in breach of its contractual obligations without the need the *Employer* to prove of show the grounds for the demand.

*Bank's* liability (insert the name of the bank) under this guarantee is valid until ....., consequently, any demand for the payment under this guarantee must be received by the *Bank* (insert the Address) on before abovementioned date after which this guarantee will automatically become null and void.

The bank guarantee is automatically terminated:

- After the expiration date of this guarantee;
- If the beneficiary refuses to use the rights under this guarantee and submits the written notification to the guarantor about refusal and returns the original Guarantee.

Signature and stamp of the guarantors'

\* Validity period of Contract Performance Bank Guarantee shall exceed completion of 3rd PHASE of CONSULTANCY SERVICES, for at least 60 (sixty) calendar days as per CONTRACT.