

## APPENDIX 1: SCOPE OF SERVICES

*J. M. M. G.*

## **Scope of Services**

**FOR AWARDING OF OWNER'S ENGINEER SERVICES OF THE PROJECT FOR  
CONSTRUCTION OF GREECE-BULGARIA NATURAL GAS INTERCONNECTOR**

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## 1. Public procurement title

The subject of the procurement is the award of a contract for performing of the owner's engineer services in connection to the Project (as defined below).

This Technical specification stipulates the scope of the public procurement as well as the terms and conditions and the requirements of the Contracting Entity (ICGB AD) for the Consultant (as defined below) performing the various types of activities within its Scope of Services set out in this document.

### Definitions

The following significant definitions are repeated hereunder:

Client	The contracting entity or authority, being an entity defined as "Client" in the Agreement or referred as Contracting Entity under the public procurement documentation.
Contracting Entity <sup>1</sup>	ICGB AD
Project	The project for the design, construction, commissioning and operation of the natural gas interconnector Greece-Bulgaria, as defined in clause 1.1 ( <i>Definitions</i> ) of the Agreement and further described in this document.
Change Management	Process of management of the impact of changes/Contract Variation in the Project set up and/or structure, including but not limited to changes in law.
Consultant <sup>2</sup>	The entity performing the role and having responsibilities of the owner's engineer (OE), as such is defined as "Consultant" in Clause 1.1 ( <i>Definitions</i> ) of the Agreement that will perform the Services in accordance with the Agreement. He has to coordinate and control on behalf of the Contracting Entity the EPC Contractors and the Line Pipe Supplier contract in such

<sup>1</sup> Note: The terms „Client“ and „Contracting Entity“ wherever used in this document and in the documentation for assigning of the public procurement under the Bulgarian Public Procurement Act shall have one and the same meaning and shall be used as synonyms.

<sup>2</sup> Note: The terms "Consultant", "Contractor" or Owner's Engineer (OE) wherever used in the Scope of Service and in the and in the documentation for assigning of the public procurement under the Bulgarian Public Procurement Act shall have one and the same meaning and shall be used as synonyms.



	way that the given objectives of the project – cost, schedule, quality, functionality are reached.
Works Contract	The contract (to be) entered into between the Client and the EPC Contractor for detailed engineering, procurement of the Equipment not procured by the Line Pipe Supplier, construction, installation, commissioning of the pipeline and staff training of the Client, as such is defined as “Works Contract” in Clause 1.1 (Definitions) of the Agreement.
EPC Contractor	The entity (to be) appointed by the Client under the Works Contract for the purpose of detailed engineering, procurement, construction, installation and training of the Client's personnel in connection with the Project.
Line Pipe Supplier	The entity named as “Supplier” in an agreement for supply of DN800 line pipes for the Project.
Line Pipe Supply Contract	The contract for the supply of line pipe by the Line Pipe Supplier appointed by the Client for the achievement of the Project.
Supplier	Supplier of Equipment for the Project.
Equipment	Equipment, materials, spare parts, bulk materials, specified and ordered for the implementation of the Project.
Contract Variations	Any change to the Employer's Requirements or the works/supplies/services defined as variations in the Works Contract, the Line Pipe Supplier's contract or other Project relevant third-party contracts.
Claims	Claims which are intimated by the EPC Contractor to the Client or which are intimated by the Client to the EPC Contractor under the Works Contract (and which term shall include any formal dispute resolution processes which may be initiated following the intimation of such claims).
Taking over certificate	A certificate issued by the Client and defined as Client's taking over and its equivalent under the national legislation for the Bulgarian part (as both are defined under the Works Contract) certifying that the Works have been completed in accordance with the Works Contract.

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Performance Certificate	The certificate issued by the Client under of the Works Contract as the same is defined under the Works Contract.
Agreement	The contract to be entered between the Client and the Consultant, according and in the form of the template enclosed to the public procurement documentation – Appendix 9.
TPI service	Services as prescribed in the Greek technical regulation “Natural gas pipelines with maximum operation pressure above 16 bar”, referred in point 16, (“Appendices and references to documents related to the Scope of services.
Construction Supervision	Mandatory as per the legislation participant in the construction process, performing the activities of the Construction Supervision, applicable for the Bulgarian territory as foreseen in the Spatial Development Act (art. 160, art. 168, art. 166, etc.) and in accordance with the Scope of Services for assignment of the Construction Supervision Services.
Designer’s Supervision	Mandatory as per the legislation participant in the construction process, performing the supervision of the designer of the investment design during the construction, applicable for the Bulgarian Territory, as it is foreseen in the Spatial Development Act (art. 162 under SDA, etc.) who performs his activity on the basis of a Contract, foreseen in art. 162, par. 2 of the SDA.
Services	Services described in this Scope of Services, to be performed by the Consultant and defined as “Services” in Clause 1.1 ( <i>Definitions</i> ) of the Agreement, as further elaborated in this document.
Works	The Works to be provided under, and as defined in, the Works Contract.
SDA	Spatial Development Act
Technical Design	The technical design of the IGB pipeline, on the basis of which a Construction Permit has been obtained, in the scope and the content in accordance with Ordinance 4 dated 21.05.2001 for the scope and content of the investment designs, designated for the territory of Bulgaria. .



## 2. General information on the Project and on the Contracting Entity

The Project is implemented by ICGB AD - an investment company registered in the Republic of Bulgaria on 5<sup>th</sup> January, 2011 with shareholders BEH EAD (50%) and IGI Poseidon S.A. (50%). IGI Poseidon S.A. is an investment company registered in the Republic of Greece with the shareholders being the Greek public gas corporation DEPA S.A (50%) and the Italian energy group Edison SpA (50%).

The Project envisages design, construction, commissioning and operation of a natural gas pipeline which will directly connect the national gas transmission systems of the Republic of Greece and the Republic of Bulgaria (the IGB pipeline). The entry point of IGB pipeline is in the region of the town of Komotini (Greece) and the exit point is in the region of the town of Stara Zagora (Bulgaria). The IGB pipeline will have also interconnection point with the Trans Adriatic Pipeline for which a Memorandum of understanding dated 13 December 2013 has been signed. IGB pipeline will have an essential strategic role and the direct effects will be in achieving real diversification of sources of natural gas supply for Bulgaria and for natural gas market in South East Europe.

The outer diameter of the IGB pipeline will be DN 800 with a total length of approximately 182 km.

The Project has obtained the support of the energy ministries of the Republic of Greece and the Republic of Bulgaria by a Memorandum of Understanding signed in 2009. The project has been declared a project of national importance and a 'national site' pursuant to decisions of the Council of Ministers of the Republic of Bulgaria No: 615/14.07.2009, No: 452/07.06.2012, as well as pursuant to Act 4001/2011 of the legislation of the Republic of Greece.

At European Union level, the IGB project has been obtaining consistent political and financial support which is of extreme importance for its successful implementation. Pursuant to a decision of the European Commission C(2010) 5813, amended by decision C(2012) 6405, co-financing has been allocated for the Project at the amount of EUR 45 million under the European Energy Program for Recovery.

### 2.1 Technical implementation and progress

The Project has obtained positive EIA (environmental impact assessment) decisions by the competent authorities on the Bulgarian and Greek territories. The construction route has been designed on the Bulgarian and Greek territories and it has been approved by the bodies in both countries - an Installation Act decision has been obtained on the Greek territory and on the Bulgarian territory a detailed spatial plan - parcel plan of the site has been approved and has taken effect.

The engineering design of the gas pipeline system has been completed in both (Greek and Bulgarian) sections, including all engineering site studies and coordination with the bodies

responsible for approving the design as well as with third parties affected by the construction of the Site. The front-end engineering design (FEED) documentation has been approved in Greece which is required when conducting a procedure for obtaining a construction permit. On the Bulgarian territory, the Technical design of the Gas pipeline which is required when conducting the procedure for obtaining a construction permit has been prepared in accordance with Ordinance 4 dated 21.05.2001 for the scope and content of the investment designs and the high-pressure pipeline engineering norms on the territory of Bulgaria and the Technical design has been approved by the Ministry of Regional Development and Public Works.

The real rights acquisition process on Bulgarian territory for the purpose of obtaining the Construction Permit is finalized.

At the beginning of 2016 investment planning of both sections of the Site (Bulgarian and Greek) was practically completed for the purposes of permitting construction.

Construction permit for Bulgarian section obtained.

## **2.2 Economic implementation and progress**

The project has started a procedure for 'temporary exemption' from regulated access under art. 36 of EU Directive 2009/73 before the national regulatory bodies in Bulgaria and Greece, EWRC and RAE respectively.

On 10<sup>th</sup> December 2015, the procedure for taking a final investment decision (FID) was completed by the shareholders. With the final investment decision taken, the shareholders' commitment to construct is affirmed after obtaining all technical and regulatory permits for constructing the gas pipeline and confirming the financial parameters set out with a view of the implementation of the construction phase of the Project and achieving commercial operation from end of first half of 2018 until end of first half of 2020.

EU grant financing up to EUR 45 million under European Energy Program for recovery has been extended until 2018. The recommendation of European Commission to Bulgarian and Greek authorities has been taken into account to investigate the options for additional grant financing of the Project through access to funds under European structural funds in both countries.

The Project has the status of a Project of Common interest under Regulation 347/2013 and it is a main priority project under the CESEC initiative for gas interconnectivity in Central and Southern Europe. In this context, the European Investment Bank and other international credit institutions have expressed active interest in financing the Project, including through instruments from the new European Fund for Strategic Investments (EFSI). The Bulgarian government in turn has included in the state budget for 2017 access to an increased amount of state financial guarantee when negotiating loan facilities for the project of up to EUR 110 million.

As of the time of awarding this service ICGB AD has not been licensed for transmission of natural gas and has not been certified as a transmission system operator.

When awarding public procurement under the Bulgarian Public Procurement Act (PPA), ICGB AD will act as a sector Contracting Entity and will apply the rules applicable to sector contracting authorities.

### **3. General description of the scope of the services subject to procurement**

The objective of the Services is to assist the Contracting Entity /the Client/ in the implementation of the IGB Project and during commissioning and training of its personnel and to coordinate and manage on behalf of the Contracting Entity all the project related Suppliers of Equipment and services including the EPC Contractor, the Line Pipe Supplier and others, in such way that the given objectives of the Project – cost, schedule, quality, functionality - are reached.

#### **3.1. General principles. Limitations of the scope. Coordination with other participants in the construction process.**

As a general principle for performing the Services the OE shall assume support and advisory functions with respect to the activities and decisions of the Contracting Entity.

OE shall manage and coordinate the provision of procurement and construction on behalf of the Contracting Entity to the extent it has been assigned to it with this scope of services or if they have been expressly authorized by the Contracting Entity for certain actions given that such actions are within the scope.

For the Bulgarian section of the gas pipeline route, in accordance with the provision of art. 166, par. 1, item 1 and item 2 of the Spatial Development Act, the Contracting Entity shall conclude a separate contract for awarding construction supervision, inspection and control of the construction materials applied in the construction site which secure compliance with the main requirements to construction sites in accordance with the requirements under the Bulgarian Technical Requirements Act and the ordinance under art. 9, par. 2, item 5 of it.

The coordination of the construction process until commissioning of the construction site and during commissioning, including control of the quantities, quality and compliance of the construction and installation works performed with the Works Contract (and, if applicable other construction contracts) in accordance with art. 166, par. 1, item 3 SDA for Bulgarian territory as well as other activities - subject to contracting shall be performed by the OE in accordance with the Services set out in this document.

The Services under this Scope of work shall be performed by the OE in coordination with the rest of the parties involved in the construction process. As a minimum number of participants for the Bulgarian section (art. 160 SDA) are:

- The Contracting Entity – the Client;

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- The EPC Contractor;
- The designer (performing Designer's Supervision under art. 162 of the SDA);
- The consultant under art. 166 of the SDA (which functions are performed by the person, performing Construction Supervision under art. 168 of the SDA, except those under art. 166, par. 1 item 3 which are performed by the OE) and natural person exercising construction supervision over the structural part;
- The site manager and
- Each supplier of Equipment.

The coordination between all participants in the process, as well as interaction with the rest of the stakeholders shall be ensured by the Contracting Entity through the OE.

Positions, opinions and guidelines of OE shall not be mandatory to the Contracting Entity and shall serve only as a basis for the decisions making of the Contracting Entity.

The OE guidelines and recommendations to third parties- parties involved in the construction process, such as the EPC Contractor and the Line Pipe Supplier shall be subject to prior approval by the Contracting Entity and shall be mandatory to these third parties if 1) required by the Contracting Entity or 2) compliance with them is mandatory pursuant to the contractual clauses between the Contracting Entity and such third parties and as far as they are not in contradiction with the mandatory prescriptions and orders of the Construction Supervision in accordance with art. 168(4) of the SDA, stating that the prescriptions and orders of the person exercising Construction Supervision, as entered in the Order Record Book, shall be mandatory for the Contracting Entity, the EPC contractor and Site manager of the construction work, which is valid and applicable for the Bulgarian part of the route. .

The Services are supplementary to the functions and obligations of the parties involved in the construction which are stipulated in the Bulgarian and the Greek legislation. In the event of discrepancies between the guidelines, opinions and positions of OE and those of the other parties involved in construction that have supervisory/inspection functions assigned pursuant to applicable law, OE shall have to comply with the guidelines of the latter.

The Project management services shall include performing of the control functions on behalf of the investor, coordination, expert support, interaction with all stakeholders, including but not limited to the parties involved in the construction process.

The OE shall act as representative of the Contracting Entity before third parties, including state bodies and institutions, local government bodies, other natural or legal persons and such representation shall be performed upon express prior authorization by the Contracting Entity.

For the Bulgarian territory, the functions of the construction process oversight forming part of the Services and the Agreement pursuant to this scope of work and the contract for awarding this public procurement shall not be Construction supervision or Designer supervision in the meaning

of SDA. In the cases when the Services include such oversight functions, they shall be treated as such falling outside the functions of the person exercising Construction supervision pursuant to art. 168 and art. 166, par. 1, item 1 and item 2 under SDA and out of the functions of the Designer's supervision under art. 162 of the SDA.

### 3.2. Phases of the performance of the Services

The Services of the OE shall be divided in two phases:

- Phase 1 – Services during the tendering phase of the Project, before start of construction;
- Phase 2 – Services during the construction phase of the Project.

In Phase 1 the Services of the OE shall cover the bid evaluation of offers during tendering process as described in paragraph 6 below.

In Phase 2 the OE shall provide the Services in the following main service areas, related to manage the execution of the project:

- Project management on behalf of the Contracting Entity;
- Technical risk assessment and management on behalf of the Contracting Entity;
- Engineering support and design review services on behalf of the Contracting Entity;
- Procurement and inspection as a Consultant of the Contracting Entity and as authorised representative when explicitly authorised;
- Fieldwork supervision on behalf of the Contracting Entity;
- Supervision over land acquisition/right of way process for the Greek territory and compensation of users and owners for affected crops for the Greek and Bulgarian section acting as a consultant to the Contracting Entity and
- Commissioning supervision on behalf of the Contracting Entity.

For the whole project the OE shall act as a representative of the Contracting Entity during the commissioning process with functions and responsibilities as described below in p. 11 of this Scope of Services.

For the Bulgarian section for the purposes of issuing the use permit under art. 177 of the SDA, the supervisory functions shall be exercised by the Construction Supervision and other authorized control authorities for example the Directorate General Technical Inspection, which is part of the special administration within the State Agency for Metrological and Technical Surveillance /SAMTS/, which exercises technical supervision of high risk equipment, falling within the scope of the Ordinances under art. 31 of the Act on Technical Requirements to

Products (ATRP) and regulated in item 1 under Attachment No. 1 to the Ordinance on the terms and procedure for issuing licences for carrying out technical inspection of high-risk equipment and on the procedure for keeping register of the equipment.

- Completion and close-out.

The services shall be carried out by the OE in compliance with the Project's execution plan based on two major contracts – Line Pipe Supplier contract and the Works contract.

The Project execution plan – to be developed by the OE and approved by the Contracting Entity as described in paragraph 7.1. below shall provide the way of interrelation between team members nominated by both parties – Contracting Entity and the OE. The responsibilities to be allocated in accordance with the allocation of the tasks and the responsibilities between the Contracting Entity and the OE as stipulated in this document and further in the Project execution plan. The personnel nominated by the OE shall be responsible for its functions and activities as assigned by the Scope of Services as well as per the description in the OE Technical offer which will be submitted in the public procurement procedure and will become an integrated part of the Agreement.

The OE shall provide and make available document management system for documentation exchange and control, implemented by means of proper software, shall assure the proper communication channels, levels of reporting and approvals and will illustrate the positions and the horizontal and vertical relation within the working team.

### **3.3. Language of the Services**

The official correspondence (exchange of signed documents) between Parties under the Project shall be in English. The English language shall be the working language for the Project and therefore the OE's personnel shall use English language for performing the Services, including written in official correspondence, communication, exchange of information, issuing of opinions and similar.

On request of the Contracting Entity the OE shall translate documents related to communication between Parties under the Project in the local languages – Greek and Bulgarian – on reimbursable basis.

In case of communication with state and local authorities, institutions and stakeholders, authorized control bodies and with persons and companies, operating within the territory of Bulgaria and Greece respectively, in case of official correspondence the language of the two countries on which territory the construction and installation works are carried out shall be used as well at the expense of the OE without any further cost transferred to the Contracting Entity.



The OE's personnel which are involved in the on-site services as filed supervisors, on-site checks and similar activities, shall as a must use also the local language of the country where the Services are performed – Greek or Bulgarian language.

#### **4. Time frame of the Agreement's execution. Reporting of Services/deliverables**

Without prejudice to clause 8.2. of the Agreement the term of the Agreement (e.g. the period during which the Services shall be performed) shall be until the last to occur:

- issuance of use permit as per art. 177 of the Spatial Development Act for the Bulgarian section,
- issuance of Operation Permit as per the Greek technical regulation "Natural gas pipelines with maximum operation pressure above 16 bar", referred in Appendix 16, for the Greek section and
- issuance of the Performance Certificate for the pipeline
- completion by the OE of its Services as described in this Scope of Services,

but no longer than the term provided in Art. 113, para. 1, PPA.

After the Commencement date for Phase 1 Services under the Agreement, the OE shall familiarize itself with all available technical and project documentation (current Project schedules, Project execution plan, risk matrix, etc.) and shall prepare an initial Project schedule (the Programme under clause 4.3. of the Agreement) containing OE's contractual activities, which initial Project schedule/Programme shall be reviewed and commented upon ultimately approved by Contracting Entity.

The Initial Project Schedule shall be prepared taking in account the expected start of the two main Project contracts – the Works contract and the Line Pipe Supplier contract and their respective time schedules.

The Services which are not described in the initial Project schedule will be performed within deadlines separately agreed between the parties'.

A preliminary Project schedule is set out in Appendix 4 to the Agreement and is subject to an update prior to commencement of the Services.

The performance of the Services shall be subject to reporting to the Contracting Entity on a regular basis. The reporting rules shall be prescribed in the Project execution plan (PEP) as per item 7.1. of this document. All deliverables produced as a result of the performance of the Services as for example written instructions, opinions, check lists, minutes of meetings and others shall be presented to the Contracting Entity as part of the monthly reports or reports with another periodicity, if this will be the case. The regular reports accompanied with the other



documentation are subject to acceptance by the Contracting Entity and will be basis for interim payments under the Agreement. Terms and conditions for acceptance of the Services and grounds for payments are stipulated in the Agreement.

### 5. Description of Project's pipeline system

The IGB pipe line will start at the region of Komotini in Greece, crosses the territory of Greece and runs generally from south to north in Bulgaria, crossing the international border at the Makaza Pass border point and reaches the exit point at the city of Stara Zagora. The Project pipeline system will be connected to the national gas transmission system of Greece and the Trans Adriatic Pipeline (TAP) at Komotini, will have AGRS at Kardzhali, off-take point at Dimitrovgrad connected to transmission grid of "Bulgartransgaz" EAD and main exit point to transmission grid of "Bulgartransgaz" EAD at Stara Zagora. The outline of Project's pipe line system is given in the figure below.

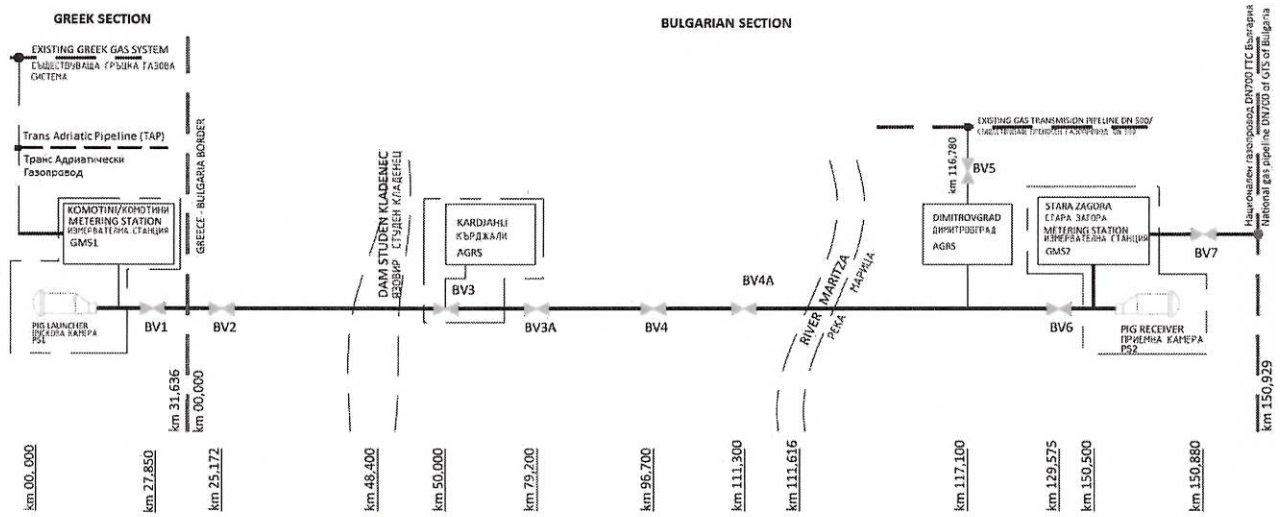


Fig. 5.1 IGB pipeline

The IGB pipeline consists of following main components:

- The main transmission pipeline DN 800 - total length of 182 km, of which 31 km in Greece and 151 km on Bulgarian territory with system capacity of 3 bcm/year. The pipeline has design pressure of 80 barg and maximum operational pressure of 75 barg. A material grade L450ME in accordance to ISO 3183, Annex M is selected for the line pipes;
- AGRS located at Kardzhali and off-take at Dimitrovgrad;
- Two gas metering stations (GMS) and pigging stations (PS) at the inlet and outlet points of the pipeline - one at Komotini and one at Stara Zagora. Interconnection points to

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DESFA and TAP system in Greece and to Bulgartransgaz system in Bulgaria (at two points);

- Line block valves (BV) – a total of 9 BVs is foreseen for the entire pipeline, of which one will be on Greek territory, the remaining on Bulgarian territory. The pipeline is divided in technological sections of length up to about 30 km by the BVs;
- Dispatching center and operation and maintenance site (O&M Site) in vicinity of Haskovo;
- Cathodic protection stations (CPS) – the CPS are designed with external power supply;
- Two major crossings - crossing of Studen Kladenets dam at Kardzhali, and also a crossing of Maritsa river. For both crossings, a HDD method is envisaged;
- SCADA system for operation and control of the whole gas transportation system of the pipeline;
- Fiber optic cable line for process and telecommunications interfaces of the pipeline and
- External infrastructure connections to all above ground installations (AGI's) of the pipeline (roads, electric power supply, water supply and sewerage, telecommunications).

In addition to the main components of the technological infrastructure listed above, the following non-exclusive list of components, ensuring the pipeline security will be part of the pipeline equipment: vent stacks for discharge of natural gas in the event of overpressure; cut-offs; protective casing for crossing under roads, railways and rivers; electrical equipment; control system (I&C); security and management system; passive and active corrosion protection of steel pipes (cathodic protection).

Beside natural gas transportation the equipment must provide also following process functionality of the system:

- Purification of natural gas from mechanical impurities;
- Natural gas heating;
- Pressure regulation and
- Measurement of temperature, flow rate and composition of the natural gas.

## **6. Services during the tender phase of the Project (Phase 1 Services)**

OE shall provide support to Contracting Entity during the tendering process of the Project. The main objective is the award of the Line Pipe Supply contract and Works contract. The OE shall

support Contracting Entity with its expertise in order to conduct the process in the most efficient way and in the best interest of the Project.

The Contracting Entity intends to organize the following procedures for preparation of the start of construction:

- Restricted procedure with reference to the Line Pipe Supplier under the Bulgarian Public Procurement Act — with the scope for supply of line pipes and
- Restricted procedure under the Public Procurement Act - having the scope for engineering, procurement, construction, training and commissioning of the pipeline and in relation to the engagement of the EPC Contractor.

Both procedures shall be developed under the following key milestones:

- Indicative start of both procedures - Q4 of 2017;
- Targeted period for issuing of an award decision – Q1 2018;
- Execution of Works contract and the Line Pipe Supplier Contract – Q2 2018 and
- Entry into force of the Works Contract and the Line Pipe Supplier Contract – Q2 2018.

The services during the tender phase of the Project will include, but will not be limited to:

- Getting acquainted with the tendering documentations – i.e. the scope of work, material specifications, work and price break-down, evaluation criteria and evaluation procedure;
- Getting acquainted with the technical documentation under the Project on which the technical part of the tendering documentation is based – FEED for Greece and the Technical Design for Bulgaria;
- Getting acquainted with the tendering documentation and the Project's technical documentation, upon consideration that the Technical Design for the Bulgarian territory is approved by the Ministry of Regional Development and Public Works for the purpose of obtaining a construction permit and is not subject to amendments;
- During the bidding period, review and answer questions and requests for clarification of tender documents requested by bidders;
- Perform evaluation of technical and commercial bids based on the criteria included in the approved evaluation procedure and provide the Contracting Entity with a detailed evaluation report;

- Support the Contracting Entity to formulate queries for bidders and responding to answers from bidders during bid evaluation phase providing drafts or/and written opinions;
- Prepare and submit recommendations to the Contracting Entity for the selection of the EPC Contractor and the Line Pipe Supplier, said recommendations shall not be mandatory for the Contracting Entity;
- Support of Contracting Entity during negotiations, if any and
- Provide support to Contracting Entity in case of any appeal against the Contracting Entity decisions.

## 7. Project management Services

The OE shall provide for the Contracting Entity all necessary project management services to ensure that Contracting Entity's objectives in regards to time, cost, HSE, environmental requirements and quality for the Project will be achieved.

The OE shall act only as supporting the Contracting Entity Consultant recommending for the Project performance. Said recommendations shall not be mandatory for the Contracting Entity

### 7.1 Project setup Services

For the execution of the Project, the OE will be required to create and further develop the Project work breakdown structure including detailed design phase, the construction phase, the training phase and the commissioning phase in the structure.

From the work breakdown structure, the OE shall finally develop a comprehensive cost breakdown structure which shall serve to the Contracting Entity as a reference in regards to the assets to be built and shall facilitate performing a tight control of the budget spent for each asset by the EPC Contractor and other Suppliers of materials and services.

On basis of the work breakdown structure, the parties shall finally determine how the team of the OE and personnel of the Contracting Entity shall interact (based on the Project execution plan, the Contracting Entity's requirements and the organization chart provided by the OE in its Technical Offer during the tender phase and set out in Appendix 8 to the Agreement).

As starting document, the OE shall prepare a Project execution plan (PEP) in which all necessary execution areas of the Project shall be explained with reference to the documents and tools to be further developed in the construction phase of the Project.

The PEP shall include the organization, roles and responsibilities of the OE's team as well as certain procedures (including design review), meeting frequency, communication, quality and reporting rules for the completion of the Services. The PEP will be used as a reference during the performance of the Services.

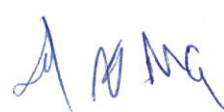
Besides the Project execution plan, a level 3 “Detailed Overview Schedule” and level 4 “Master Control Schedule” shall be developed allowing the Contracting Entity and OE to control the project and measure in detail the progress.

During the Project tender phase, an initial risk management workshop shall be conducted to identify the risks and opportunities of the Project. Furthermore, the OE shall proceed with the further development of the opportunities and specify for the risks the mitigation measure to be implemented during the construction phase or if necessary already in the Project tender phase.

In a further workshop with the Contracting Entity, the further definition of the Contracting Entity’s project objectives, the critical success factors and the key performance indicator shall be established allowing during the construction phase a close measurement of the actual status.

The OE shall develop plans and procedures which shall be approved by the Contracting Entity and which shall aim to control:

- Communication within the Project;
- Exchange of documentation (including final technical documentation);
- Time & cost (e.g. contract administration, procurement supervision);
- Risk management;
- Engineering (e.g. review of detailed design, field engineering);
- Fieldwork supervision;
- Identification of stakeholders - participation, roles, responsibilities, influence over project;
- Permitting;
- Progress monitoring and reporting;
- Quality (e.g. Issuance of non-conformances, testing and inspections, punch list), considering as well art. 166, par. 1 item 3 under the SDA for the Bulgarian section and
- HSSE with the exception of the obligations imposed on the Construction Supervision Company under art. 168, par. 1 item 4 of the SDA for health and safety requirements for the Bulgarian territory, including execution of environmental protection plans as prescribed in EIA permits for both countries – Greece and Bulgaria.



## 7.2. Project execution

### 7.2.1. Health, security, safety and environment Services (HSSE)

The OE shall develop procedures in relation with its activities (which will be approved by the Contracting Entity) in connection with the setup and further development of the HSSE management system, which will also comprise the elements of construction, commissioning and training works. With reference to HSSE for the Bulgarian section, OE shall take as a basis all parts of the Technical Design where such part health and safety are already developed.

Moreover, the OE shall organize a safety risk assessment which shall result into a safety concept. The risk assessment performed by the OE is aimed to ensure that the obligations for the Contracting Entity to follow the HSSE requirements, including those imposed by the local legislation (for the Bulgarian territory the Act on Health and Safety at Work and Ordinance No. 5 dated 11 May 1999 on the procedure, manner and frequency of risk assessment) are duly met.

The safety concept shall be used as the basis for the Project HSSE documentation, which shall be used for controlling the implementation of the measures provided in the Project HSSE documentation. OE shall perform on regular basis HSSE audits and review sessions in order to give assurance to the Contracting Entity that the risks of breaching its legal duties and obligations are minimized as well as that the risks for damages/injuries are properly mitigated. For the Bulgarian section, these functions shall be carried out upon consideration of the functions of the Construction Supervision as per art. 168, par. 1, item 5 of the SDA.

With regards to the environment the OE shall enforce the measures for design which has been defined in the respective assessments, approved Project HSSE documentations, regulations and permits.

Among others, the OE shall:

- Review the EPC Contractor's and the Line Pipe Supplier's HSSE manuals and plans;
- Review the EPC Contractor's and the Line Pipe Supplier's HSSE procedures. Check that the proposed procedures meet the requisite standards as determined by the Contracting Entity's requirements and good engineering practice;
- Monitor if the requirements of the HSSE manual, plan & procedures are fulfilled by the EPC Contractor and the Line Pipe Supplier;
- Immediately notify any non-conformance of which the OE becomes aware;
- Request the EPC Contractor's and/or the Line Pipe Supplier's execution of urgent safety measures where required and identified;

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- Monitor adherence to studies submitted to authorities including, without limitation, the environmental impact assessment studies on both territories - Bulgaria and Greece - and safety plan;
- Check and sign on behalf of Contracting Entity any HSSE document as required by the applicable law. For the Bulgarian section, these functions shall be carried out upon consideration of the functions of the Construction Supervision under art. 168, par. 1, item 4 of the SDA and
- Support the Contracting Entity in the process of monitoring of compliance of the EPC Contractor in terms of environmental requirements.

### 7.2.2. Quality management Services

The OE shall develop relevant procedures which will be approved by the Contracting Entity creating and extending the IGB's quality management system to the construction phase of the project. The OE shall also prepare the necessary Project quality documentation for the construction phase of the project and perform on regular basis quality audits. Part of the quality management services shall be the managing of the corrective and preventive actions during the execution of the Project.

Among others, the OE shall:

- Perform all its activities within a framework of his own quality system which is based on the principles of ISO 9001 or equivalent;
- Review and understand the EPC Contractor's/Line Pipe Supplier's quality system and
- Be subject to audits on QA/QC and/or HSSE issues by representatives of the Contracting Entity.

### 7.2.3. Commercial management Services

The commercial services shall include assistance of the Contracting Entity in progress certification and invoice process starting by the reception of the invoice, throughout following the checking process and up to the point of payment.

Among others, the OE shall:

- Verify the Works progress certificates and corresponding payment certificates, including but not limited to the process of issuing of acts during construction works (for the Bulgarian section the acts under Ordinance No. 3 dated 31.07.2003 on Producing Acts and Protocols in the Construction) and payment certificates relating to Contract Variation orders (if any). For the Bulgarian section, the OE shall sign on behalf of the Contracting Entity the acts under Ordinance 3 dated 31<sup>st</sup> July 2003 on Producing Acts and Protocols in the Construction;

- Technically support the Contracting Entity in the evaluation and settlement of Contract Variation (in the types and amounts of works and/or services) requests and claims for additional works and for services to be paid, extensions of schedule or similar;
- Inform the Contracting Entity if any works are being executed that are not covered by the Works contract. Confirm daily and enters in the site records that no works subject to Contract Variation have been executed without prior written approval of the Contracting Entity as stipulated in the Works contract. For the Bulgarian section, there shall be a Site Record Book filled and maintained in accordance with the provisions of the SDA. Entries in the Site Record Book as per the SDA are made only by the persons entitled by and in accordance with the provisions under the SDA. Such rights in accordance with art. 170, par. 3 of the SDA with reference to art. 168, par. 4 of the SDA (mandatory prescriptions and orders) has the Construction Supervision and
- Technically support the Contracting Entity in all aspects of his administration activities.

The OE shall also maintain the relevant part of the Contracting Entity's invoice register and for the Bulgarian section – a copy of the acts (protocols) under Ordinance 3 on Preparing of Acts and Protocols in the construction which is Project related.

The invoice register as well as the contract register resembling the commitments in the project shall serve as basis for the preparation of year-end / month-end accruals which the OE shall review and also serve as interface between the Contracting Entity's accounting team and an external accounting company with the aim of ensuring that the laws and regulations of Bulgaria and Greece are being met.

A part of the Services shall update together with the Contracting Entity's team the following categories of risks in regards to insurances:

- Health and safety risks, risks for life of all that might be exposed to such risks;
- Property risks (route, land, engineering and design studies, supplies, inventories, sites, erection, construction);
- Liability risks (covering quality, environment, public);
- Project finance risks (plans, interest rate, business interruption) and
- Causality risks (politics).

The evaluation of the risk categories shall be used for update in coordination with an insurance broker company/Contracting Entity's experts the necessary insurance policies for the execution of the Project.

The OE shall assist the Contracting Entity in the finalization of the insurance policies with an external insurance broker taking into consideration the requirements for insurance coverage that is imposed on the EPC Contractor and the Line Pipe Supplier in accordance with the applicable legislation and the good practices.

#### **7.2.4. Progress monitoring and reporting**

The OE shall establish a progress measurement system with a suitable weighting system which forms the basis for the Earned Value Analysis to be conducted by the OE on a regular basis.

With respect to the reporting to the Contracting Entity, the OE shall provide on a monthly basis a detailed report giving an overview of the actual status in regards to the Project objectives, detailed information concerning the Project contracts, work progress and proposals for mitigation measures (if required), etc. in relation to the EPC Contractor, the Line Pipe Supplier and any another Supplier which has a contractual relation with ICGB for the Project and the progress of the OE itself with a 30 day look-ahead report in which the main items are outlined in regards to the next reporting period.

Among others, the OE shall:

- Review and understand the EPC Contractor's/Line Pipe Supplier's detailed programmes for the execution of the works and/or services and determine and assess key risks;
- Monitor the timely execution of the works and/or services and Equipment delivery against the applicable schedule and if the case arises, advise and propose necessary remedial actions to recover any delay that may occur during the Suppliers' contracts' execution;
- Independently measure and report progress against an agreed breakdown of the Works and/or services and Equipment delivery (e.g. line pipes) under the Suppliers' contracts;
- Independently document and report the completion of separate elements of the Works and material delivery against an agreed breakdown;
- Report monthly to the Contracting Entity on all results of progress monitoring activities;
- Comment on the monthly progress report issued by the EPC Contractor/Line Pipe Supplier;
- Report weekly on the progress of the Works and/or the services and Equipment delivery under the Suppliers' contracts and
- Maintain detailed and accurate logs and records of its progress monitoring activities.

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### **7.2.5. Interface management**

The OE shall perform the Project stakeholder management, including but not limited to the construction process participants, by identifying and documenting the Project stakeholders, preparing the interface management plan for both physical and organizational interfaces and constant follow-up and control of the plan and its mentioned interfaces.

### **7.2.6. Planning and scheduling**

A level 3 “Detailed Overview Schedule” and level 4 “Master Control Schedule” shall be developed to serve as a baseline schedule and to integrate the work schedule of the EPC Contractor, the Line Pipe Supplier and other Project relevant third-party entities.

The baseline schedule shall serve for the purpose of controlling the Project and shall measure in detail the progress of the Project and shall compare it with contractual schedule milestones.

### **7.2.7. Cost estimating, benchmarking and monitoring**

The OE shall perform whenever it is necessary (according to the Contracting Entity) cost estimation for costs which arise from either Contract Variations/changes or claims by the EPC Contractor, the Line Pipe Supplier or other Project relevant third-party entity.

The OE shall identify, define and standardize the essential administrative requirements to record, track and report accurate cost data. The OE shall assist the Contracting Entity by providing all tasks required to achieve demonstrable budget and cost control. Thereby the OE shall perform the following tasks:

- Cost coding (preparation of a cost breakdown structure on basis of the work breakdown structure);
- Cost reporting;
- Earned value analysis;
- Change or claims control and
- Contingency management & contingency drawdown.

### **7.2.8. Communication management and document control**

The OE shall provide the framework and the rules for an effective communication with and between the Project participants. It shall foresee that all important communication is available in written form and appropriately registered, archived and safeguarded. It shall manage other third-party entities in such way that they comply with the framework specified above.

The OE shall handle all issues in regards to document control between the Project entities. Thereby the Consultant shall provide sufficient staff for performing the work as well as a

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document management system for documentation exchange and control, by means of proper software, which allows individually definition of access rights and is self-explanatory to be used.

Concerning the final documentation packages, the OE shall:

- Review the "as built" drawings presented by the EPC Contractor and issue its opinion thereon to the Contracting Entity;
- Review the technical documents provided by the EPC Contractor and the Line Pipe Supplier and
- Check that complete and correct final technical documentation is being assembled by the EPC Contractor throughout the execution of the Works Contract according to the Contracting Entity's requirements and to report to the Contracting Entity.

#### **7.2.9. Project risk management**

The Services in regards to the risk management are the organization and moderation of risk management workshops, the constantly update of the risk register and the supervision and control of the implementation of the mitigation measures.

The OE shall perform a schedule risk assessment and a cost risk assessment. The outcome shall be noted in the overall risk management and the mitigation measures shall be tracked by the action tracking system of OE.

#### **7.2.10. Change Management**

The OE shall lead the Change Management process by evaluating changes/Contract Variations proposed by the EPC Contractor or other Supplier taking into account local legislation and contractual framework and shall define, supervise and control the steps as defined in the change management process.

#### **7.2.11. Procurement supervision of the EPC Contractor and Line Pipe Supplier**

The OE shall be responsible on behalf of the Contracting Entity for overseeing all tendering and procurement activities of the EPC Contractor and the Line Pipe Supplier. The OE shall review the plans for the procurement (under the Line Pipe Supplier's contract and the Works contract) and plans for construction (under the Works Contract).

The OE shall monitor and review Project's activities related to the procurement, expediting, inspection and material control to verify that these are performed in accordance with the Works Contract, respectively the Line Pipe Supplier Contract and approved procedures. This will include the following activities:

- review and monitor the EPC Contractor's and Line Pipe Supplier's policies and procedures in respect of:

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- commercial terms;
  - general and special conditions of purchase;
  - purchasing procedures consistent with the Contracting Entity's approach and requirements;
  - expediting and inspection procedures including co-ordination with third party inspection (TPI), (see p. 9.4.3 of this document);
  - shipping procedures including procedures for packing, handling, storage and protection during shipment;
  - control availability of spare parts, if necessary;
  - establishment of corresponding ethical requirements in line with the Contracting Entity's requirements and policies.
- review the vendors' list prepared by the EPC contractor, respectively the Line Pipe Supplier, based on the criticality of the equipment or system, the quality of the contractor's specifications, drawings or procurement specifications;
  - review all purchasing recommendations by the EPC Contractor, respectively the Line Pipe Supplier prior to order placement, to certify that:
    - the bid summary portrays a comparison of the significant elements of the order, technically and commercially;
    - delivery is in accordance with the Project schedule;
    - commercial terms are acceptable within the Project policies and
    - monitor order placement, manufacturing progress and delivery of critical equipment against the requirements of the Project schedule;
  - review purchasing documents for selected Equipment to verify completeness of documentation and compliance with applicable legal requirements and the Works Contract respectively the Line Pipe Supplier Contract requirements;
  - review spare parts recommendations for the Equipment (if such are required), and monitor order placement for spare parts to verify that these results in delivery to the required Project schedule;
  - review bulk material control;



- check that Supplier documentation and instruction manuals are assembled for Contracting Entity;
- review Supplier quality plans and
- verify that procurement records and reports of the EPC contractor and the Line Pipe Supplier are complete and accurate and generally maintained in good order.

The OE will perform a preliminary assessment of any deviation or non-conformity under the Works Contract and the Line Pipe Supplier Contract and give relevant recommendation to the Contracting Entity as to how to deal with such deviation or non-conformity.

The OE shall ensure that the EPC Contractor, and respectively the Line Pipe Supplier Contractor does not invite tenders for the supply of goods or service from those who do not dispose of the required qualifications and experience and shall check whether the tenders include a complete specification of what is required, with all applicable codes, standards and technical specifications, the conditions of Works Contract's, and respectively the Line Pipe Supplier Contract purchase and payment conditions. The OE shall verify that the general conditions of contract for all third-party sourcing by the EPC Contractor and respectively the Line Pipe Supplier, contain conditions no less onerous than those in the Works Contract, respectively the Line Pipe Supply contract and that liabilities so far as practicable and relative to the work to be subcontracted are commensurate with requirements under the Works Contract and respectively the Line Pipe Supplier contract. The OE shall verify only those companies, as approved by Contracting Entity in the vendors' list of the EPC Contractor respectively the Line Pipe Supplier, are allowed to tender. If companies' other than those in the approved Suppliers' list are invited to tender, these shall be immediately rejected by the OE.

The OE shall ensure that any subcontracting by the EPC Contractor, respectively the Line Pipe Supplier, is in compliance with the requirements and restrictions on subcontracting contained in the Works Contract and Line Pipe Supply Contract respectively, and shall reject any proposals which are not in compliance with those requirements and restrictions.

The OE shall review the EPC Contractor and respectively the Line Pipe Supplier's tenders and recommendations for award, and shall certify to Contracting Entity that the recommendation is acceptable and that the tendering has been carried in full compliance with the Contracting Entity's requirements and approved procedures. The OE with the EPC Contractor and respectively the Line Pipe Supplier shall monitor the progress of all subcontractor and Suppliers' activities for compliance with the Project master schedule and the contractor schedule to ensure that as minimum:

- They do not adversely affect the Project milestone schedule;
- Suppliers 'data (where required) is obtained timely;

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- QA/QC requirements of the Works contract and respectively the Line Pipe Supplier Contract are appropriately applied, including were applicable factory and other tests are carried out;
- Work, material and Equipment supplied are fit for purpose;
- Subcontracted work at the site is subject to the same HSSE and QA/QC standards and conditions as for the Works contract, respectively the Line Pipe Supplier Contract;
- The EPC Contractor and respectively the Line Pipe Supplier Contractor enforces remedial action for defective third-party supplied goods and services, and all defects (and their rectification) are recorded in the punch list and
- Warranties and guaranties are transferable to the Contracting Entity, and the requirements for material traceability are adhered to.

Moreover, the OE shall:

- Check EPC Contractor's, respectively the Line Pipe Supplier's, material receipt activities and check that correct and complete documentation that complies with the specifications exists for materials, including any material not procured by the EPC Contractor. This includes attendance during pipe unloading for the verification of delivered quantities and recording of any damages of Contracting Entity's supplied pipe:
- Visual check the materials before incorporation in the Works;
- Check that the EPC Contractor's material identification system is working and that materials can be traced to their relevant documentation and
- Check the EPC Contractor's, respectively the Line Pipe Supplier's material storage, protection and preservation activities.

#### **7.2.12. Supervision of line pipe's delivery process**

The OE shall be responsible for overseeing all activities related to line pipe's delivery process. The OE shall supervise all activities of Line Pipe Supplier to be performed in accordance with the Line Pipe Supplier's Contract. The OE shall verify that expediting, inspection and material control activities follow the approved procedures. It shall also ensure that proper arrangements are in place for the line pipe's delivery, between the Line Pipe Supplier and the EPC Contractor.

This will include supervision over following activities:

- Delivery of line pipes according to Project schedule;



- Expediting, inspection and material acceptance procedures including shop and site inspections related to manufacturing and delivery process of the line pipes (for the Bulgarian section in accordance with art. 166, par. 1 item 3 under SDA); in terms of material control, control of logistics, acceptance process, review of accompanying documentations and all other aspects that give assurance to the Contracting Entity that the pipes could be accepted and paid for;
- Shipping procedures including procedures for packing, handling, storage and protection during shipment;
- Handling of purchase order amendments, back charges and insurance claims;
- Remedial actions for defective supplied materials, and all defects (and their rectification) are recorded in the punch list;
- Check that correct and complete documentation that complies with the specifications exists. This includes attendance during line pipe unloading for the verification of delivered quantities and recording of any damages of supplied line pipe;
- Visual check of the Equipment before their incorporation into the works;
- Check that the line pipes identification system is working and that they can be traced to their relevant documentation and
- Check the Equipment/material storage, protection and preservation activities.

#### **7.2.13. Contract administration Services**

The contract administration activities of the OE will start with the award of the Works Contract and Line Pipe Supplier contract and it will continue in coordination with the award of the other contracts of the Project (including the contract in connection with the archeology survey in Bulgaria, the Construction supervision contract according to the Spatial Development Act in Bulgaria and the Designer's Supervision contract according to the Spatial Development Act in Bulgaria) and shall end when the following conditions will have been fulfilled:

- the issuance of the Use Permit as per art. 177 of the SDA for the Bulgarian section with
- the issuance of the Operation Permit for the Greek section, as per the Greek technical regulation "Natural gas pipelines with maximum operation pressure above 16 bar", referred in Appendix 16. OE shall support Contracting Entity and sign also the relevant application;
- the issuance of the Performance Certificate for the pipeline system as a whole and
- submission and approval by the OE of the contract close-out which shall at least include the following processes:



- Administration of bonds and insurances;
- Communication with the EPC Contractor, the Line Pipe Supplier and other Suppliers;
- Progress and performance monitoring of the Works Contract and Line Pipe Supplier contract and other Project contracts;
- Handling of payment application and invoices, including recommendation to the Contracting Entity to proceed with payments;
- Management or as applicable supervision of management of Contract Variations / changes;
- Management or as applicable supervision of management of claims;
- Management or as applicable supervision of management of contractual records;
- Management of Works Contract and the Line Pipe Supplier contract close-out and
- Supervision of the Contracting Entity training services provided by EPC Contractor.

#### **7.2.14. Representation of the Contracting Entity**

The OE shall represent the Contracting Entity before local and other authorities and entities, with respect to the Project execution upon explicit prior authorization of the Contracting Entity. Upon request of the Contracting Entity the OE shall participate in all necessary site meetings, progress review meetings, head office meetings and similar, organized and conducted by the Contracting Entity.

### **8 Engineering support**

#### **8.1 General**

##### **8.1.1 Overview of the Services related to the engineering support**

The Services to be provided by the OE in regards to the engineering is the review and supervision of the detailed design prepared by the EPC contractor acting as representative of the Contracting Entity.

The OE will also review the documentation produced by the Line Pipe Supplier as representative of the Contracting Entity.

The engineering and design review services to be provided by the OE are:

- Additionally, to the review performed in Phase 1, detailed review of the existing technical documentation provided by the Contracting Entity - FEED and technical design;
- Additionally, to the review performed in Phase 1, detailed review of documents and reports produced following the FEED and the technical design up to the award of the Works Contract and Line Pipe Supplier contract, including design review performed by ICGB and its shareholders IGI Poseidon and BEH;
- Review and comment on the EPC Contractor's documentation,
- Review and comment on the Line Pipe Supplier's documentation ensuring that it is compliant with the specification
- Review and design acceptance on behalf of the Contracting Entity of EPC Contractor's detailed design;
- Review and supervision of the EPC Contractor's procurement activities related to design decisions;
- Engineering support and supervision during the design process during the construction phase;
- Review and check of final technical documentation ("as-built" drawings) for the needs of the Contracting Entity;
- Monitoring of the documents status by using a data base allowing monitoring of information and progress reporting and
- In case of change/Contract Variation requests, review of proposals and evaluation of contractual options from a technical and commercial perspective for the needs of the Contracting Entity.

To be able to perform the above tasks, the OE shall develop engineering management plans and procedures, including technical query, technical deviations (for the Bulgarian section in accordance with art. 154 of the SDA) and review and approval for the needs of the Contracting Entity. These plans and procedures shall ensure the diligent management of output from design entities and other technical deliverables.

By performing engineering and design supervision, OE shall participate in consultations for resolution of design conflicts as a representative of the Contracting Entity and in the case of options, determine with the EPC Contractor, and such other third-parties as may be required, which shall be the optimum option. Major conflicts shall be raised for discussion with the



Contracting Entity, and those having significant impact (the level shall be agreed between the Contracting Entity and the OE in the Project execution plan at start of the Services) shall be approved by the Contracting Entity. Where the selected option results in cost or schedule impacts that are in excess of the agreed with the Contracting Entity authority of the OE, the OE shall recommend a preferred option to the Contracting Entity, together with all relevant supporting information for a Contracting Entity's decision. The OE's functions in respect with resolution of conflict points does not interfere with the powers of the Construction Supervision company to issue prescriptions and orders and their dispute under the SDA for the Bulgarian section of the route (as per art. 168, par. 4 of the SDA).

### **8.1.2 Standards and codes**

The OE shall maintain, update and manage codes and standards approved and applicable to the project and shall ensure compliance thereto by all design entities as far as acceptable in accordance with the applicable legislation, unless a formal deviation is authorized through approved procedures.

### **8.1.3 Review, commenting and approval of technical deliverables from the EPC Contractor and Line Pipe Supplier**

The OE shall review technical deliverables, reports and other documentation submitted by the EPC Contractor and Line Pipe Supplier to the OE to verify them for accuracy, completeness, format, and content for the needs of the Contracting Entity. The OE shall be ensuring the timely submission of all reports and other documentation required to be submitted by the design entities to the Contracting Entity under the Project contracts.

### **8.1.4 Technical queries and deviations**

The OE shall be responsible for resolving all technical issues raised by the EPC Contractor and the Line Pipe Supplier, including all technical queries raised by the EPC Contractor during the detailed design phase as well as during the construction phase. The OE shall ensure that all technical queries raised are recorded in writing, together with the response thereto. Technical queries shall each bear a unique identifier for tracking purposes and shall be recorded in the technical query register together with all related documentation. Any supplementary technical query shall be cross-referenced with the initial technical query. Technical queries outstanding for response shall be subject to a 'follow-up' procedure at appropriate intervals in meetings between the OE and the EPC Contractor/Line Pipe Supplier. The OE shall analyze each technical query and where required, propose a solution to the Contracting Entity acting as a consultant or give instructions to the relevant design entity on behalf of the Contracting Entity if authorized to do so. The OE shall make timely responses in accordance with the time limits provided in the contract of the EPC Contractor to all technical queries raised by the EPC Contractor to ensure that there are no adverse impacts to the Project milestone schedule or delay claims arising from a delayed response.



Any technical query that has a potential for an adverse effect on either or both schedule or cost in excess of the express authority of the OE (the level of which to be agreed with Contracting Entity at the start of the Services), the query shall be referred to the Contracting Entity for resolution, together with a recommendation from the OE. Such recommendations shall be made in writing, outlining the advantages and disadvantages of the alternatives in sufficient detail to justify the OE's recommendation. The OE shall review for the needs of the Contracting Entity the EPC Contractor's proposals to deviate from the Project standards e.g. to comply with the local laws and requirements, resolve any conflict between the standards, codes or specifications detailed in the Project specifications, and review EPC Contractor's proposed standards. All technical deviations should be managed through and registered in the technical deviation system, as per approved procedures. For the Bulgarian section art. 154 under the SDA shall be observed.

Beside the Project schedule and cost the OE shall also deal with potential "significant changes" (for the Bulgarian section within the regime for establishment and approval of deviations under art. 154 of the SDA) to the technical design and consequential changes in Construction permit on Bulgarian Territory. If this is the case, the OE shall communicate and align the matter with the Contracting Entity an opinion on the issue. These OE functions shall not derogate performance of the procedures for making material changes to the technical design for the Bulgarian section of the pipeline route, if such are required, but are aimed at preceding or supporting the Contracting Entity in taking such decisions.

#### **8.1.5 Management of holds**

The OE shall ensure diligent management of design holds on the Project deliverables by EPC Contractor and shall monitor resolution of holds until achievement of the final status.

#### **8.1.6 Equipment numbering and data books**

The OE shall monitor development of appropriate equipment numbering procedures by the EPC Contractor and shall monitor the production of indices, layout, printing and binding of Equipment data books.

#### **8.1.7 Document control registers and final drawings**

The OE shall monitor development of and approve the document control registers to be submitted by the EPC Contractor and shall ensure on behalf of the Contracting Entity proper recording and archiving of technical deliverables up to the point of submission of as-built drawings and documents.

#### **8.1.8 Changes in the Works**

The OE shall review technical content of EPC Contractor's claims for Contract Variations/changes in the EPC Contractors' scope of work specified in the Works Contract.



### **8.1.9 Other deliverables from the OE**

The OE shall develop and submit to the Contracting Entity reports and other documentation, as may be requested by Contracting Entity on a variety of technical and commercial matters pertaining to the Project and within the area of expertise of the OE.

### **8.1.10 Value engineering**

Throughout the detailed design period, the OE shall conduct value engineering analyses to identify and resolve factors that may cause increases in cost or effort in the design, construction and operation of the Project. The OE shall employ up to date technologies, knowledge and skills to efficiently identify costs or efforts that do not positively contribute to optimum efficiency. Value engineering shall be performed jointly by the OE (on behalf of the Contracting Entity) and the EPC contractor.

### **8.1.11 Safety reviews**

The OE shall monitor development of plans for the timely and diligent organization of safety reviews during design, construction and commissioning of the Project and shall attend on behalf of the Contracting Entity such reviews to ensure that the approved procedures are properly followed and implemented (for the Bulgarian section upon consideration of art. 168, par. 1, item 4 of the SDA).

### **8.1.12 Close-out / handover reports by EPC Contractor**

The OE shall ensure development and submission of close-out/handover reports from EPC contractor, including definition of required content and the review and verification of reports from the EPC Contractor.

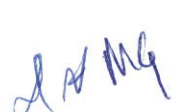
The reports shall include a recommendation for take-over of the Works Contract by the Contracting Entity and identify the records to support such recommendation. These reports are advisory with respect to the actions of the Contracting Entity on accepting the Works.

## **8.2 Engineering and design supervision during the detailed design phase**

The OE shall oversee on behalf of the Contracting Entity the engineering and design works to be performed by the EPC Contractor in accordance to the Works Contract (including its appendices comprising of the technical design for Bulgarian territory and FFED for the Greek territory).

The originator of the design shall retain responsibility for the integrity of design and the originator shall not be relieved of that responsibility.

The OE, as specified in the Works Contract, shall, as a minimum as representative of the Contracting Entity, review the detailed design against both the established FEED for the Greek section and the technical design for Bulgarian section as appendix to the Works contract and the endorsed design review report.



The OE shall verify to the Contracting Entity that the pipeline system is engineered in accordance with the Project specifications, that the detailed design is sufficient and fit for purpose and that the pipeline system can operate in accordance with the performance guarantees specified in respective project contracts. As described in further detail in the next sub-sections, the Services related to engineering and design supervision will in summary include the following activities:

- Review and approve for the needs of the Contracting Entity of all engineering deliverables produced by design entities to ensure progress and compliance with all relevant contractual documents/requirement. OE will generally review all engineering documents when issued to the Contracting Entity;
- Review design entities' development of process flow diagrams, P&ID diagrams, plot plans and hazardous area classification;
- Review design entities' development of designs for critical major Equipment items including appropriate attendance at Supplier/manufacturers' meetings as necessary;
- Respond to technical queries from design entities;
- Participate with design entities in safety and HAZOP review meetings etc. as listed in design contracts on behalf of the Contracting Entity and
- Review technical content of claims for changes in the technical requirements specified in the Works contract for the needs of the Contracting Entity.

### **8.3 Engineering and design supervision during the procurement phase of the EPC Contractor**

#### **8.3.1 General**

The OE shall supervise during the procurement phase the EPC Contractor and its third-party affiliates in regards to the compliance of the project objectives as well as the technical requirement specified in the Works Contract.

Therefore, the OE shall supervise the design vetting process to be conducted by the EPC Contractor, participate if necessary in test and inspection session at the vendor and perform QHSE audits at the subcontractor premises.

The OE will monitor the development of these items from Supplier selection through to final testing and inspection (also detailed under the next section for procurement activities). For critical equipment and material, the OE shall monitor and ensure that special quality requirements are developed and implemented throughout the procurement and delivery processes.

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### **8.3.2 Identify and monitor planning for major Equipment**

The OE shall monitor identification of those major and critical equipment items which will have long lead time, intensive design requirement, high cost, complex technology, high pressure, and difficult logistic requirements etc. to be regarded as particularly important for the execution of the Project.

For other equipment items, the OE will monitor the development of specifications and check for compliance with the Project specifications to ensure compliance.

### **8.3.3 Technical assessment of proposals / quotations**

For EPC Contractor procured items, OE shall verify that purchase orders for major and/or critical equipment items are satisfactory and in accordance with the Project contract, Project specifications and requirements (also taking into account that for the Bulgarian section art. 169b of the SDA shall be applied by the Construction supervision company).

### **8.3.4 Suppliers data**

The EPC Contractor having responsibility for the detailed design will have responsibility for obtaining Supplier data in time to avoid delay to the Project milestone schedule. The OE shall not approve on behalf of the Contracting Entity as "approved for construction" status to any EPC Contractor provided design drawing if it is not complete due to a lack of vendor data or otherwise, such drawings should be treated as design documents with holds. The OE shall use reasonable endeavors to aid the EPC Contractor to obtain required vendor data, but shall not relieve the EPC Contractor from its obligations in this regard. Certification and status of accepting drafts of the detailed design are entirely for the needs of the Contracting Entity and with respect to accepting the work of the EPC contractor and shall be separate and shall not derogate the legal obligations of the other parties involved in the construction process that have controlling/supervisory/ inspection functions in accordance with the SDA on the Bulgarian territory.

To monitor the performance of the EPC Contractor and Supplier, the OE will review Suppliers' drawings and EPC Contractor's comments thereon for major equipment items and a sample for other equipment items for the needs of the Contracting Entity.

The OE shall ensure that appropriate provisions are included in all subcontractor and Suppliers supply agreements to ensure that Supplier data is submitted timely such that it does not delay the Project milestone schedule.

## **8.4 Engineering and design supervision during the construction phase**

During the construction planning phase, the OE shall review the EPC Contractor's construction planning activities and deliverables to verify that these are in accordance with overall Project requirements. This will include:

- review of the EPC Contractor's development of construction logic and schedule;
- review of the EPC Contractor's development of construction man power and resource mobilization;
- review of the EPC Contractor's development of construction subcontract plans, subcontract documents, terms and conditions, and schedules;
- review and recommendation for approval of changes of sub-contractors proposed by the EPC Contractor if appropriate for the Project;
- review of and amendments in EPC Contractor's development of temporary facilities and rigging/heavy lift program and all studies related to them;
- provision of coordination between all entities working on the site, and the site liaison with government/local state authorities and other relevant organizations;
- review and approval of the EPC Contractor's QA/QC plans and procedures;
- review and approval of execution of the EPC Contractor's safety and field control procedures;
- review and approval of EPC Contractor's Project execution plan and
- review and check for the needs of the Contracting Entity of final technical documentation ("as-built drawings").

## 9. Fieldwork supervision

### 9.1 The OE's general responsibilities during construction

The OE shall oversee and supervise the EPC Contractor's work and the delivery process of line pipes by the Line Pipe Supplier at the site during construction on behalf of the Contracting Entity (and in the case of the line pipe at the delivery points specified in the Line Pipe Supply Contract). Except for a minor coordination team at Contracting Entity's headquarters, the OE shall base its project team on site throughout construction and shall ensure and verify that as a minimum:

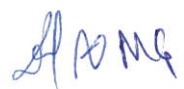
- The EPC Contractor and the Line Pipe Supplier adhere to the Project schedule;
- All construction work by the EPC Contractor is in full compliance with the Works Contract;
- All construction work by the EPC Contractor is to the required quality;
- All works by the EPC Contractor (including the subcontractors) are performed to the applicable codes, standards and specifications;

- All delivered line pipes are conformed with the specified quality and quantity according to the Line Pipe Supplier contract's provisions and the Project's schedule;
- Any and all changes/Contract Variations to the Works Contract scope of work are fully justified and supported by arguments;
- All materials inspection and testing of the EPC Contractor's work and the pipeline system components are correctly carried out and fully documented;
- Drawings and documents are maintained at the site at as-built status;
- Mechanical completion has been attained when the EPC Contractor so proposes;
- Preparations for pre-commissioning are complete;
- Preparations for commissioning are complete and
- All tests, inspections and trial operations are satisfactorily completed.

During construction execution, the OE shall carry out the following activities as minimum:

- Review the EPC Contractor's documenting of special processes which will be subject to qualifications. Witness the qualification for such processes. Review welding procedures and welders' qualifications;
- Produce supervision plans to match the EPC Contractor's activities. Document all supervision activity and findings via the use of supervision checklists for specific activities and locations;
- Assure on behalf of the Contracting Entity timely accomplishment, or otherwise, for the backfilling of the EPC Contractor's works, as stipulated in the Works Contract;
- Conduct all supervision activities towards the principal results of confirming to the Contracting Entity that the Works are progressing correctly and towards the take-over of the Works;
- Review of the EPC Contractor's construction organization, coordination procedures, manpower plans and schedules;
- Review of a delivery plan of Line Pipe Supplier – production, testing, transportation, storage;
- Monitor the allocation of construction resources in consideration of relative priorities to meet the Project construction program and recommend any appropriate corrective action where shortage of resources might hamper the Project construction program;

- Monitor the planned and actual delivery of equipment and material to site, and the handling, storage, maintenance and installation of such equipment and materials;
- Monitor and inspect construction Works performed by EPC Contractor or the subcontractors to verify that such Works are performed in compliance with the Project specifications, issuing certificates (for the Bulgarian section – and signs acts on behalf of the Contracting Entity) if required, and that workmanship is in accordance with appropriate standards of quality; the certificates that are issued by and on behalf of the Contracting Entity are those envisaged in the Works Contract and the Line Pipe Supply Contract and/or assigned with this Scope of Services. For the avoidance of doubts, the certifications of the Works issued by the Contracting Entity and/or by the OE shall be supplementary and shall not derogate the implementation of the Ordinance No. 3 of 31.07.2003 on preparing of acts and protocols during the construction for Bulgarian territory.
- Supervise and carry out site inspection of construction Works of the EPC Contractor on a regular basis;
- Plan the attendance of inspectors (see points 9.4 and 9.5 of this document) during important tests on main Equipment including shop- and factory acceptance tests (FAT), and performance of detailed inspection where it is considered to be necessary and issuing certificates, if required;
- Review and audit field engineering drawings according to the drawing control procedure to verify that the latest approved revisions are being used, including review of field supplementary designs and design modifications;
- Monitor and audit the progress of EPC Contractor's Works at the site against the Project schedule for the needs of the Contracting Entity, using information provided by the EPC Contractor and information generated independently by inspection; report to the Contracting Entity any existing or potential delays, and recommend actions to correct such delays. The OE shall ensure that scheduling, control and reporting procedures are followed;
- Advise the Contracting Entity on the issue/approval of certificates and approval of milestone events for payments to the EPC Contractor;
- Exercise quality assurance over construction, by selective review of installations, witnessing of inspections, and audit of test and inspection records;
- Assist the Contracting Entity in the resolution of problems; advise on any claims from the Contractors and the issue of change/Contract Variation requests and issue a technical position paper and recommendation for the Contracting Entity and





- Ensure that all required Project insurances are obtained in force.

## 9.2 HSSE during construction

The OE shall monitor and report to the Contracting Entity, for the needs of the Contracting Entity, on the adequacy and extent of the EPC Contractor's compliance with Contracting Entity's requirements for the control of health, safety, security and environment (HSSE) in the execution of the EPC Contractor's works.

The OE shall ensure that the EPC Contractor complies with the HSSE obligations identified in the Works Contract and the applicable legal provisions. The OE will develop required procedures for enforcing HSSE regulations and reporting and handling of HSSE related issues. The OE shall provide advice, guidance and expert assistance to the EPC Contractor on HSSE matters, and shall review, revise and recommend (to the Contracting Entity) the approval of all EPC Contractor HSSE reports, plans and documentation to verify that the EPC Contractor meets the environmental requirements included in the respective EPC Contract. The OE shall monitor the EPC Contractor's planning and execution of the construction Works to verify that construction safety issues are fully addressed, and that safety regulations and safe working practices are implemented.

The OE shall review the health safety statistics for the EPC Contractor for both the work of EPC Contract and at project/corporate level, and shall conduct trend analysis on those statistics. The OE shall make recommendations on behalf of the Contracting Entity to the EPC Contractor for suitable remedial actions to counter any adverse trends. The OE shall take into consideration that for the Bulgarian section art. 5, par. 7 of Ordinance No. 3 on preparing of acts and protocols during the construction also shall be applied.

The OE shall regularly attend all EPC Contractor convened HSSE meetings and shall review the attendance records and minutes of all such meetings, which shall be entered into the document management system. The OE will participate fully in the Contracting Entity's safety program acting as the Contracting Entity's representative at all stages of the program.

When the OE attends the facilities, offices and work sites of the EPC Contractor, the OE personnel (including any subcontract personnel and consultants) shall comply with the EPC Contractor's safety management plan and procedures applicable to that facility office or site.

The OE shall have the authority on behalf of the Contracting Entity to monitor and control if exceptional cases occur where immediate interruption of the work of the EPC Contractor is needed and to require corrective actions with the purpose to:

- to preserve the life and health of any person under threat of avoidable death, injury or harm;

- to prevent loss or damage to any Contracting Entity property or the property of any third-party whether incorporated into the Project facilities or otherwise and/or
- to prevent a breach by the EPC Contractor of the HSSE requirements to be included in the Works Contract comprising a material breach of the Works Contract.

The authorization of the OE for temporary interruption of works of the EPC contractor for the Bulgarian section does not interfere with the rights of the Construction supervision entity to give instruction for suspension of the EPC Contractor's works on Bulgarian territory under the conditions of the Bulgarian Spatial Development Act (art. 168 of the SDA and Ordinance No. 3 on preparing of acts and protocols during construction).

### 9.3 QA/QC during construction

The QA/QC obligations of EPC Contractor and the Line Pipe Supplier will be part of their respective contracts. The OE shall be responsible for overseeing activities of the EPC Contractor and the Line Pipe Supplier to ensure their compliance with the QA/QC requirements of their respective contracts and shall specifically review all inspection and test plans, all test procedures and all other QA/QC documentation and requirements of the both contracts. It shall be the responsibility of the OE to monitor the development and implementation of quality assurance programs of the EPC Contractor and the Line Pipe Supplier and to review their adequacy for their proposed application and notify the both contractors accordingly. Plans, procedures and documents relating to QA/QC which are not acceptable to the OE shall be returned to the EPC Contractor or to the Line Pipe Supplier by the OE annotated with the deficiencies, requirements for correction/change and the timing for their resubmission.

Based on the Project schedule and QA/QC activities of the EPC Contractor and the Line Pipe Supplier, the OE shall develop and maintain a test and inspection plan including all related activities according to the respective contracts and the applicable specifications. The test and inspection plan shall include all necessary activities for ensuring the compliance of all works and delivered goods with the Project specifications – Supplier contracts, specifications, etc. and legislation and permitting requirements.

The OE will have prime responsibility for the quality of the works and supplied goods and will oversee all construction activities to ensure conformance to approved drawings and specifications.

The OE shall monitor the commissioning of the electrochemical protection prior the commissioning of the gas pipeline, however not later than six months after its laying in the trench, notwithstanding if the complete gas pipeline is installed.

Inspection and audit staff - assigned by the OE - will supervise the conformance of the EPC Contractor and the Line Pipe Supplier to the requirements of their respective contracts. The OE

will provide reports as required by the Contracting Entity on monitoring results, construction progress, material acceptance and problems encountered at the site.

### 9.3.1 Audit

The OE shall audit the work of the EPC Contractor and the Line Pipe Supplier against the requirements of their respective contracts. In advance of commencement of the construction, the OE shall submit to the Contracting Entity for review and approval, an audit plan for auditing the work of the both contractors. This audit plan shall take account of the differing aspects of the Project's work, locations where these works will be performed and shall include also the subcontractors and vendors of the EPC Contractor and the Line Pipe Supplier, if any. For work that is performed or goods and services that are being undertaken remotely including overseas, OE shall manage its inspector personnel to undertake these activities as part of the Services.

The OE shall ensure that the auditing and other functions under this Agreement do not adversely affect the work of the EPC Contractor and the Line Pipe Supplier and that the relevant contract schedules for both contractors to complete their work incorporates sufficient time to accommodate the requirements for audit, surveillance and other activities of the OE under this document.

Audit reports on the activities of the OE shall be submitted to the Contracting Entity and copied to the EPC Contractor or the Line Pipe Supplier for rectification as appropriate. The OE shall keep and update an audit register to follow-up non-conformities and corrective actions until the close-out of the relevant contract.

During the audits and/or other supervision activities, the OE is authorized to issue notices of contractor's (EPC Contractor and the Line Pipe Supplier) non-conformities to the contracts, plans, procedures, good practice and the applicable law. Non-conformities reports from the OE are to be issued to the relevant contractor, with a copy to the Contracting Entity. Non-conformances may relate, amongst others, to the physical works, materials, documentation, equipment used, methods / procedures followed and personnel employed.

Moreover, the OE shall follow-up and confirm the disposition of non-conformances and identify any re-occurring non-conformances which have common causes.

The Non-Conformance Reports shall be issued immediately upon discovery of the occurrence.

### 9.3.2 Testing

The OE in his capacity as representative of the Contracting Entity shall require the EPC Contractor to carry out sufficient inspections and tests of the work and the pipeline system to demonstrate conformance with the Works Contract. The OE shall review and approve on behalf of the Contracting Entity, alter, amend or reject all EPC Contractor inspection and test plans

(ITP) as it deems appropriate to the nature and service of the items to be tested. The OE shall monitor the EPC Contractor's compliance with QA/QC requirements in the Works Contract.

The inspections and tests of materials delivered by the Line Pipe Supplier shall be planned taking in account also the requirements of p. 9.4 "Inspections and testing by third party inspection (TPI)". The test and inspection plan of the OE shall include all necessary activities (including TPI activities) related to inspection and testing of line pipes on Greek and Bulgarian territories and at the Line Pipe Supplier's manufacture location. The OE shall review and approve, alter, amend or reject the quality plan provided by the Line Pipe Supplier specifying quality controls for the products.

The OE shall specify and agree with the EPC Contractor for hold, witness and review points in the Works Contract construction schedule for tests, examinations and verifications to be conducted and concluded to permit inspection and testing of the EPC Contractor's work prior to it being covered up to avoid incorporation into the pipeline system of material and equipment with hidden or latent defects and as assurances of fitness for purpose of the EPC Contractor's work. The OE shall ensure that the nature extent and duration of all such hold, witness and review points are reasonable and consistent with the obligations of the EPC Contractor under the EPC Contract and that they do not adversely affect the project milestone schedule or result in increases to the project costs.

Where any test or inspection is to be held by the EPC Contractor, it shall be witnessed by OE's inspection personnel, as dictated by their supervision plans. This shall include any tests conducted on the premises of the EPC Contractor or of its subcontractors. OE's inspection personnel shall endorse the results of all tests and inspections and issue a report to the Contracting Entity.

If after observing any inspections, examinations or tests, the OE is of the reasonable opinion that the EPC Contractor's work or the pipeline system or any part or each of them is defective or is not otherwise in accordance with the Works Contract, the OE shall reject the defective work or pipeline system component in accordance with the Works Contract giving the EPC Contractor the in the EPC Contract specified calendar days written notice of such rejection specified in the Works Contract, stating therein the grounds upon which the rejection is based. the OE shall record all test failures in the punch list.

Following the remedy or repair or replacement of any rejected work, materials or Equipment, the OE shall agree with the EPC Contractor for a repeated test.

### 9.3.3 Punch list

The OE shall be responsible for identifying any defective work of the EPC Contractor both during the design phase and the construction phase to final acceptance of the EPC Contractor's works. Any and all defects shall be noted in the punch list together with the remedial and corrective



actions. The OE shall aid the Contracting Entity in seeking redress for the remediation and correction of the EPC Contractor's work defects without any additional charge to the Contracting Entity.

The OE shall be responsible for the custody, management and administration of an electronic punch list of defects for the pipeline system. The OE shall record in the punch list all defects, faults, failures, and non-compliances with the requirements of the Works Contract that occur during the Work and anywhere within the pipeline system. The OE shall be the sole party permitted to update the punch list and to change the status of any punch list record. The EPC Contractor shall have full and unrestricted access to the punch list but shall not be permitted to change the status of any punch list item.

The punch list items that are remedied or rectified, shall not be removed from the punch list, but shall be assigned a status of 'rectified' with details of the nature of the rectification work performed, when the rectification was verified, including the nature of the verification process, and the EPC contractor personnel that verified the rectification.

OE shall have the discretion to determine whether there are a sufficient number of lower category faults or defects to be equivalent to a higher category.

#### **9.4 Inspections and Testing by Third Party Inspection (TPI)**

##### **9.4.1 General**

According to the Greek legislation (Greek technical regulation "Natural gas pipelines with maximum operation pressure above 16 bar"), referred in point 16, ("Appendices and references to documents related to the Scope of services"), there is a need for the Project's certification by an accredited Third Party Inspection (TPI).

Therefore, the OE shall subcontract the relevant services to a certified entity according to the requirements of Greek national legislation company to provide the TPI services. The certificates issued by the TPI entity on the Greek territory are part of the permitting during the construction, testing and setting into operation of the pipe line system and above ground installations.

The TPI entity shall keep its independency from the OE, in performing their duties and will report also directly to the Contracting Entity. The TPI's contractor personnel shall be approved by the Contracting Entity, who has the right to request their replacement, in case that there are any doubts concerning the provision of independent and satisfactory the TPI's Services.

The TPI's contractor's point of contact for the execution of the TPI services shall be the OE. The OE shall ensure that the TPI entity shall plan its activities in relation to test and inspection plan and other QA/QC documents managed by the OE.



The main duties of the TPI entity appointed by the OE will be the field inspection of the construction activities on the Greek territory and the shop inspection of the Line Pipe Supplier for the Project as a whole.

According to the Greek technical regulation "Natural gas pipelines with maximum operation pressure above 16 bar", Art. 11, as well as to the specifications referred in the attachment C.2 of the Greek Technical Regulation, the tests and other activities (e.g. the evaluation of the suitability of the incorporated materials and any other referred in the technical specifications of the Greek national gas transmission system operator - DESFA) have to be certified by accredited companies. According to Article 12 of the Regulation, these Companies must be accredited by the Greek National Accreditation System (ESYD) or by an accreditation body which is recognized as equivalent to the aforementioned, according to requirements of standard ELOT EN ISO / IEC 17020 entitled "General criteria for the operation of various types of bodies performing control." This This standard (ELOT EN ISO / IEC 17020) requires the TPI entity's personnel to be technically competent and qualified for the performance of the TPI services. In that respect, the selection criteria regarding the TPI's assigned personnel are presented in the documentation for the public procurement procedure.

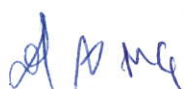
The certificates issued by the TPI entity will be included in the file which is required for the issuance of the operation permit and the start of operation of the pipeline system (Article 13, par.7 of the

According to similar Projects of Greek natural gas transmission system, the TPI entity is required to have a notification according to the European directive for Pressure Equipment (Directive 2014/18/EU).

#### **9.4.2 TPI's coordination and reporting**

The TPI's contractor's point of contact for the execution of its services shall be the OE. The OE shall ensure before the Contracting Entity that the TPI entity shall take responsibility for the following main duties regarding coordination and reporting of the TPI services:

- Ensure that inspection is being strictly performed according to the applicable procedures and relevant technical specifications. The TPI entity shall check with the OE that there is no non-conformance Report raised against a document that is to be used for the performance of the services;
- Cooperate with the OE and attend meetings as reasonably requested, including pre-inspection meetings;



- Receive from the OE all applicable documentation for the performance of the TPI services and distribute to the individual inspectors. Receive from inspectors the inspection reports and forward them to the OE;
- Maintain a register of certification and reports issued by the inspectors with the allocation of unique sequential numbers to all reports and certificates;
- Maintain a register of approved inspection personnel;
- Submit to the OE monthly reports in typed form with a detailed description of the TPI services performed by the TPI entity during the month and
- Ensure that the monthly report will list all inspection visits performed during the month, with the following information provided as a minimum for every such visit:
  - Items inspected and certificates issued;
  - Type of inspection performed (state item number, as it appears on appropriate check list, for actions carried out) and
  - Man-hours spent.

Pre-Inspection meetings shall be organized between the OE and the TPI entity, the purpose of which is to clarify the following points:

- Define the TPI' contractor's activities in relation to the test and inspection plans of the Project;
- Determine the co-ordination requirements;
- Review the schedule for the work;
- Introduce the reporting procedure;
- Describe the non-conformance reporting procedure and
- Describe the TPI entity's responsibilities and authorities.

#### **9.4.3 Shop inspection of the Line Pipe Supplier for the Project**

The objective of these Services is to certify that the whole amount of DN 800 coated steel line pipes for the IGB Project is in accordance with the Contracting Entity's specified requirements shortly described in point 14 of this document. The TPI entity's personnel shall visit and be attendant at manufacturers' premises to achieve this objective.

Without limitation, the TPI entity's personnel shall:

- Review certificates for all material received by the supplier for the supply, checking that they demonstrate that the material is compliant with the specified requirements and confirming such compliance by stamping the certificates;
- Witness all tests that are required by the specifications and any others that the supplier may perform, and countersign and stamp the test documentation;
- Check all required calibration certificates and endorse copies of such;
- Check all required process and personnel qualifications and endorse copies of such;
- Witness all process and personnel qualifications that are required by the specifications and any others that the Supplier may perform, and countersign and stamp the relevant documentation;
- Monitor all aspects of the manufacturing process towards achievement of the objective;
- Inspect discrete features of the process and of the product towards achievement of the objective and
- Issue an inspection release note and certificate to EN 10204, type 3.2, no later than two days after completing the inspection.

The TPI Services will be performed by TPI entity's personnel at manufacturers' premises. The line pipes may be manufactured in several production runs and at different locations. The inspectors will attend as many locations on as many occasions as may be necessary to complete the TPI services. The inspectors will issue non-conformance reports where applicable. The inspectors will ensure that any material subject to a non-conformance report is adequately quarantined.

Following specifications concerning shop inspection of the Line Pipe Supplier are referred in this document (see point 16, "Appendices and references to documents related to the Scope of services") - Technical Job Specification 970/2, High Pressure Transmission Systems, Shop Inspection of Equipment and Materials for NGT Project and Technical Job Specification 970/3, High Pressure Transmission Systems, Inspection and test instruction.





#### 9.4.4 Field inspections on the Greek territory

Another main duty of TPI's contractor, appointed by the OE will be field inspections of the construction activities on the Greek territory. The objective of the site inspections is to provide objective third-party certification that:

- Materials incorporated in the construction comply with specified requirements;
- All specified tests have been successfully performed;
- All welding complies with specified requirements and
- And that adequate documentation exists to evidence all above.

The achievement of the objective will be confirmed with the issue of a final inspection certificate for each construction, substantiated with appropriate documentation.

Without limitation, the TPI entity's personnel shall:

- Review certificates for all material received on the site, checking that they demonstrate that the material is compliant with the specified requirements and confirming such by stamping the certificates. This shall also include, without limitation, welding consumables;
- Witness all tests, including hydraulic testing of the pipe line or other pressurized equipment, that are required by the specifications and any others that the EPC Contractor may perform, and countersign and stamp the test documentation;
- Check all calibration certificates and endorse copies of such;
- Check all required process and personnel qualifications and endorse copies of such;
- Witness all process and personnel qualifications that are required by the specifications and any others that the EPC Contractor may perform, and countersign and stamp the relevant documentation. Without limitation, these shall include welding and non-destructive testing (NDT);
- Monitor all aspects relating to welding towards achievement of the objective;
- Inspect discrete features of processes relating to welding and of the construction in relation to welding towards achievement of the objective;
- Maintain list of approved welders;

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- Assess all radiographs of welds and
- As requested by the OE, regularly report on quality measurements as well as progress towards the issue of the final inspection certificate and compilation of the associated substantiating documentation.

The TPI's Services are described in the preliminary inspection and test plan included in the attachments to this document. The TPI entity's detailed activities will be defined against the final EPC Contractor's inspection and test plan and quality plan developed by OE's team. Services will be performed by TPI entity's inspection personnel at various locations during the construction along the length of the IGB pipeline on the Greek territory required for the needs of inspection (e.g. welding procedure specification (WPS) / welders' qualification, destructive tests and others.) associated with the pipelines.

The following specifications concerning field inspections are referred in this document (see point 16, "Appendices and references to documents related to the Scope of services"):

- Technical Job Specification 181/2, High Pressure Transmission Systems, Pressure Testing;
- Technical Job Specification 180/1, High Pressure Transmission Systems, Welding Inspecting;
- Technical Job Specification 970/2, High Pressure Transmission Systems, Shop Inspection of Equipment and Materials for NGT Project and
- Preliminary inspection and test plan for the field inspection.

### **9.5 Field inspections during construction of the pipe line on the Bulgarian territory**

The supervision/control over the overall performance on behalf of the Contracting Entity shall be performed also by field inspections. The field inspections on the Bulgarian territory during construction shall be conducted by the OE's personnel as part of the OE being representative of the Contracting Entity on site. The general terms are described in point 9.3.2 of this document.

On the Bulgarian territory during construction the OE personnel shall be present on the site to control the performance of the Works on behalf of the Contracting Entity and shall also attend all inspections and tests, which are part of the construction process, shall inform the Contracting Entity on the results and signs the respective protocols on behalf of the Contracting Entity if authorized for this activity. The general terms are described in p. 9.3.2. The inspection activities on Bulgarian territory shall be based on the test and Inspection plans developed by the EPC

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Contractor and approved by the Contracting Entity (following the OE recommendation) and/or Construction Supervision contractor, where applicable.

Bulgarian legislation does not require certifying by TPI personnel as in Greece and the OE inspectors on Bulgarian territory will not issue a certificate (e.g. EN10204, type 3.2) for their activities. But in order to unify the approach for testing and inspection for the whole Project it is recommended that the OE implements the attached in point 16, ("Appendices and references to documents related to the Scope of services") technical specifications for field inspection (e.g. pressure testing, welding inspecting, shop inspection of equipment and materials for NGT Project) and to align as much as possible the approach of inspection and testing on Bulgarian and Greece territory during the construction.

The OE shall coordinate certain field inspection works (e.g. hydraulic tests as well as future cleaning from mechanical debris and water in view of guarantying the quality of the transported gas during operation) with the EPC Contractor and the Construction Supervision, the Directorate General Technical Inspection in accordance with the Bulgarian legislation, where the Bulgarian section is concerned.

#### **9.6 Supervision over construction permitting activities assigned to EPC Contractor**

Following indicative permitting activities of the EPC Contractor on Bulgarian territory shall be supervised by the OE:

- Regarding already obtained permits for crossing of:
  - Water bodies (rivers, lakes, irrigation and drainage channels);
  - Roads and railway infrastructure;
  - Infrastructure and equipment own by other third parties – telecommunication and electricity power cables and other type of infrastructure and
  - Water inlet and offtake points for hydraulic tests of the pipe line.
- Obtaining permits for:
  - Temporary storage sites for pipes and equipment.

The OE shall supervise for the needs of the Contracting Entity the need of additional permitting, alignments and approvals during the constructions and shall notify about them the Contracting Entity.

The OE shall coordinate the interaction between EPC Contractor and the entity conducting remaining activities of the archaeology survey (archeological monitoring during the construction)

on Bulgarian territory. If necessary construction plans shall be amended in order to avoid conflict between ongoing archaeology survey and the construction activities.

On the Greek territory, the OE shall supervise and coordinate the following activities related to the archaeological survey that will be conducted before start of construction:

- Start of communication and consultation with relevant authority – Central Office of Ministry of Culture and Sports (“Office of Coordination and Monitoring of Archaeological Works within the framework of Major Projects”) regarding the archaeological survey;
- Acceptance of “basic plan-budget” – break down of costs for the survey that shall be founded by the Project and
- Coordination of the monitoring of the construction works by personnel assigned by competent authority and in case of any findings during the construction works liaison with the team or entity that will conduct archaeological survey in order to minimize the effect on Project’s time schedule.

#### **9.7 Liaison with the Construction Supervision entity in Bulgaria acc. Spatial Development Act (SDA) in Bulgaria**

The OE shall liaise with the entity awarded by a separate contract to perform the functions of Construction Supervision acc. Spatial Development Act in Bulgaria (CS acc. SDA).

The OE shall support the Construction supervision entity appointed acc. SDA regarding access to project information needed by the Construction supervision entity, plan together the required by Bulgarian legislation activities concerning construction phases and issuance of related documentation (for the Bulgarian section in accordance with Ordinance No. 3 on preparing acts and protocols during construction). As set out above the Construction Supervision Services shall be assigned in a separate procedure for selection of a contractor by the Contracting Entity and shall be performed on the basis of a separate contract.

#### **9.8 Liaison with the Designer’s Supervision entity in Bulgaria acc. Spatial Development Act (SDA) in Bulgaria**

The OE shall liaise with the entity which is performing the functions of Designer’s Supervision in accordance with art. 162 of the Spatial Development Act on the territory of Bulgaria.

The OE shall support the Designer’s Supervision entity regarding access to project information needed by the Designer’s Supervision entity.

#### **10. Land acquisition / right of way activities**

On the Bulgarian territory, the OE shall supervise the activities of the EPC Contractor related to compensation of land owners for crops during construction, which will include the following:

- Review and check if all land owners/users are properly identified by cross checks in the respective registers and/or communication with local authorities for the purposes of managing risks that there are users that are not properly compensated and to give assurance to the Contracting Entity that the EPC contractor has performed the necessary activities that are within its scope of work;
- Review and check the calculated compensation payments by a licensed appraiser/s, if necessary, for the purposes of accepting the evaluations by the Contracting Entity in terms of following the applicable legislation, methods and procedures and especially for reflecting in the compensations specifics for the affected plots /if on-sites visits have been performed in the evaluation process;
- Mediation between the EPC Contractor and affected land owners/users and
- Reporting to the Contracting Entity regarding the compensation process.

On the Greek territory, the OE shall assist the Contracting Entity for the completion of the land owner's compensation procedure in Greece. The activities related to this part of the Services will be started earlier than the construction and will include the following:

- The support to the region's committee (on behalf of the Contracting Entity), in the preparation of the draft decisions for the calculation of the loss of crops amounts, based on the issued unit rates;
- The right of way zone, being available on behalf of the Contracting Entity, including the contacts with the land owners and the authorities, for the performance of the payments of the loss of crops;
- In case of an appeal (if any) to the court by a land owner, provide technical support to the Contracting Entity and
- The preparation of monthly reports, concerning the status of the overall payments to the land owners and users.

#### **11. Commissioning Supervision and close-out activities**

The commissioning of the pipeline system shall be in two parts:

- Pre-commissioning to verify that component parts and sub-systems of the pipeline system have been installed correctly; are in accordance with the Works Contract and operate according to their designated and assigned functions and

- Commissioning to demonstrate that systems operate correctly and that the pipeline system operates as an integrated entity in accordance with the Works Contract and have the operational characteristics that comply with the Works Contract.

For the needs of the Contracting Entity the OE shall review and approve the EPC Contractor's pre-commissioning and commissioning procedures and shall participate on behalf of the OE in preparation of the pre-commissioning and the commissioning prior to commencement of pre-commissioning and commissioning activities taking into account the regulations of the both countries – Greece and Bulgaria and the provisions of the Works Contract.

The OE will monitor the EPC Contractor's pre-commissioning and commissioning activities to verify that they are carried out safely and in accordance with the respective Works Contract and approved procedures.

The OE shall coordinate for the needs of the Contracting Entity both pre-commissioning and commissioning activities of the EPC Contractor. For these supervising activities OE shall assign its own personnel (in liaison with TPI personnel on Greek territory in accordance with the TPI's scope of services).

The OE shall be the authority for approving on behalf of the Contracting Entity all proposals by the EPC Contractor for pre-commissioning and commissioning tests. The OE shall only approve on behalf of the Contracting Entity requests for pre-commissioning and commissioning tests when it is satisfied that the subject matter of the test is in accordance with the Works Contract, and that the test proposed may be carried out safely without adverse impact on the outstanding work of the EPC Contractor. OE shall ensure that the EPC Contractor does not carry out any pre-commissioning or commissioning tests without the prior approval of OE (in liaison with the TPI entity's personnel on the Greek territory according the TPI entity's scope of services).

During pre-commissioning and commissioning, the OE shall be responsible before the Contracting Entity for recording the results of all tests, and maintaining the punch list of defects. Testing, defect correction and remedial punch list work shall remain the responsibility of the EPC Contractor.

The maintenance of the punch list; approval of the characterization of punch list work; witness of testing and pre-commissioning; certifying that the pipeline system is ready for commissioning/testing as the case may be, shall be the responsibility of the OE.

During pre-commissioning and commissioning, the OE shall carry out, more specifically, the following:

- Review of the pre-commissioning and commissioning procedures prepared by the EPC Contractor, and develop comprehensive a mechanical completion check list, identifying mechanical completion, pre-commissioning and commissioning activities for the EPC



Contractor, as applicable;

- Prepare, jointly with EPC Contractor, the punch lists of unfinished Works at site during the final stages of completion, as defined in the relevant Contract;
- Review the schedule for handover and mechanical completion, commissioning of the Project to ensure that this allows of an efficient start-up of operations of the pipeline system;
- Physically check out the facilities, piping, mechanical, electrical, instrumentation, telecom, SCADA and cathodic protection systems and facilities for conformance with approved drawings and specifications by inspector personnel;
- During pre-commissioning, witness all tests on equipment and systems; review the test documentation prepared by EPC Contractor for completeness and compliance with the Project requirements, and certify successful completion specifications (in liaison with the TPI entity's personnel on the Greek territory according the TPI entity's scope of services);
- Ensure start-up of Equipment in accordance with unit operating manuals, and performance of hot adjustment, calibrations and similar, in accordance with the check list of commissioning activities by assigning inspector personnel (in liaison with TPI entity's personnel on the Greek territory according the TPI entity's scope of services);
- Inspect all pipeline system components when submitted by the EPC Contractor for hand-over, review and agree any exceptions lists, and issue hand-over certificates;
- Verify that the EPC Contractor completes outstanding works, if any, according to the agreed schedule, without hindering the commissioning and the initial operation of the pipeline system;
- Where any defects or problems are identified during commissioning, notify the EPC Contractor and obtain acceptable proposals for corrective action;
- Monitor the checking and calibration of instruments and systems used in commissioning and testing of the pipeline system/components by assigning inspector personnel (in liaison with TPI entity's personnel on the Greek territory according the TPI entity's scope of services);
- Ensure that the systems are thoroughly flushed/pigged and cleared of debris and that temporary attachments, scaffolding and similar are removed prior to the start-up of the operation of the pipeline system;
- Agree test-run procedures with the EPC Contractor; witness test runs and the site acceptance tests, collect test data, analyse and evaluate the performance test reports



to determine actual performance of Equipment and other facilities against the requirements of the Works Contract and the EPC Contractor's guarantees contained therein by assigning inspector personnel (in liaison with the TPI entity's personnel on the Greek territory according the TPI entity's scope of services);

- Monitor performance evaluation and guarantee tests, and recommend actions in the event that performance is not achieved;
- Certify provisional and final acceptance of the Project, and issue acceptance certificates on behalf of the Contracting Entity with Contracting Entity 's prior written approval in accordance with the terms of the Works Contract and the relevant regulatory regimes;
- Undertake material reconciliation and the Project close out;
- Verify the site clean-up completion by the EPC Contractor;
- Determine, in consultation with the Contracting Entity when the certificate of final acceptance should be issued and provide to Contracting Entity a written recommendation regarding payment to the EPC Contractor of sums which are to be released to the EPC Contractor on issuance of such certificates. The OE shall issue an acceptance certificate in compliance with the Works Contract, as the case may be, confirming acceptance of the EPC Contractor's works after Contracting Entity 's prior written approval, for the Bulgarian section the OE shall advise and/or shall sign Act No. 15 under Ordinance No. 3 on Preparing of Acts and Protocols during Construction on behalf of the Contracting Entity if authorized for this activity, all these activities shall take into account the regulations of both countries – Greece and Bulgaria and
- Prior to release of final payment under any Contract and/or performance bond, verify that the EPC Contractor has settled all outstanding payments, liens and claims from its subcontractors, suppliers, service providers and any other third party, including satisfactory rectification of any damage to third party property.

For the Bulgarian section, with reference to the commissioning and the close-out activities, there are strictly established rules under the SDA and Ordinance No. 3 on preparing of acts and protocols during construction, which are applicable.

## 12. Training

According to the Works Contract, the EPC Contractor shall provide training to the Contracting Entity's personnel in operation and maintenance of the Project equipment and the pipeline system. The OE shall review the training plan of EPC Contractor and provide recommendation and amendments if needed.





The OE shall interface with the EPC Contractor to monitor the training, the pipeline system take-over, preparations for project operation, and pipeline system and Equipment maintenance during start-up and testing of the Project. The OE shall inform the Contracting Entity of any problems and advise and assist for their resolution.

OE shall check for the needs of the Contracting Entity if all developed operation manuals by the EPC Contractor for the equipment and the installations are available and if the latter are drawn up in a language, which is understandable for the operational personnel.

### **13. EPC Contractor's scope of work**

This chapter contents short description of EPC Contractor's scope of work.

The objective of the EPC Contractor's scope of work is the complete realization of the Gas Interconnector Greece – Bulgaria (IGB) Project stretching from the Komotini area (Greece) to Stara Zagora area (Bulgaria), which is in compliance with the Work Contract's documents and that is completely suitable for its intended purpose.

The EPC Contractor's scope of work includes – in general - the following parts:

- Review of the FEED and technical design and all technical documentation for the purpose of elaboration of the detailed design (for the Bulgarian section – Working Design within the meaning of art. 139, para. 1, p. 3 SDA and with content according Ordinance 4 on the scope and content of investment designs) according to recommendations for changes from the Contracting Entity (to the extent permitted by the applicable law) and according to requirements due to permit acquisition (for the Bulgarian section Construction Permit is already obtained);
- Collect all available data from the Contracting Entity and other sources/ authorities/ permit documents / EIA in order to define their effect to the design and implementation process;
- Acquisition of outstanding permissions by authorities / infrastructure owners and other parties, as required by the national legislation in Greece and Bulgaria, taking in account the actual permitting status of the Project at the start of the Works in order to finalize the whole project related permitting process in both countries (for the Bulgarian section land right acquisition is completed and Construction Permit is already obtained);
- Elaboration of the detailed engineering design (for the Bulgarian section – Working Design within the meaning of art. 139, para 1, p. 3 SDA and with the content of Ordinance 4 on the scope and content of investment designs) based on the FEED for the Greek part and based on technical design for the Bulgarian part of the Project on the basis of which the Construction Permit is obtained;
- Elaboration of the field engineering;



- Preparation and submission of the final technical documentation package including as built drawings;
- Mobilization / demobilization;
- Providing all facilities, materials, instruments, transport, cars etc. as well for own personnel and Contracting Entity's stuffs (including OE personnel);
- Construction management and control;
- Quality management, quality control;
- Health and safety management;
- Procurement of all materials and equipment subject of the Works Contract;
- Co-ordinates the delivery and take-over of materials supplied by Contracting Entity, namely those line pipe DN 800 that are delivered under Line Pipe Supply Contract;
- Receipt at point of delivery and transportation to EPC Contractor's storage of Contracting Entity provided materials, including all necessary liaison with materials Suppliers, shipping agents, etc. and assistance with customs clearance (as required);
- Storage of Equipment supplied by EPC Contractor and Contracting Entity;
- Transportation of all Equipment from storage areas to site;
- Construction - erection – installation including facilities and access roads;
- Execution of the tie-ins and interconnection activities with existing installations;
- Inspection;
- Testing;
- Pre-commissioning;
- Commissioning;
- Training for operation staff in all disciplines;
- Performance test (as applicable);
- Start – up and
- Providing all documents according the requirements of the authorities for the issuing of operation permit.

It is highlighted that any service or work not specifically described above but which is deemed necessary for the complete and proper Project execution and operation in full compliance with

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the Works Contract will be considered to have been specified and included in the EPC Contractor's scope of work.

#### **14. Line Pipe Supplier's scope of delivery**

The scope of delivery of the Line Pipe Supplier includes the production, inspection, testing, shipment, transportation to point of delivery and submission of relevant documentation according contractual requirements of steel line pipes with nominal diameter DN800 for the Project. Approximate length of the delivered pipes shall be appr.188 km, contingencies included.

The delivered pipes shall be of the type SAWH or SAWL for the line sections of the pipe line and SAWL for pipe pieces considered for cold bending (approx. 15% from the whole amount).

General pipe's specification – material grade, tolerances, mechanical characteristics, testing, marking and other delivery conditions – shall be according EN ISO 3183:2012, level PSL 2 and Annex M – pipe ordered for European onshore natural gas transmission pipelines.

The line pipes shall be delivered in material grade L450ME with four different wall thicknesses corresponding to the different design factors (11 mm; 14,2 mm; 16 mm; 20 mm), with 3-layer polyethylene external coating and inner epoxy lining.

Line Pipe Supplier shall operate an effective quality system which, as a minimum, shall comply with the requirements of ISO 9001 and shall liaison with the TPI entity during the shop inspections.

#### **15. Construction Supervision according SDA in Bulgaria. Scope of Services**

The scope of services related to this activity includes Construction Supervision pursuant to SDA in Bulgaria for the construction of the Bulgarian section of the Project. The services of the entity who shall perform the functions of Construction Supervision acc. SDA in Bulgaria shall cover following activities:

- Construction Supervision pursuant to art.166, par.1, item 1 and item 2 of SDA (construction oversight; inspection and control of the construction materials supplied to the site and applied in the construction) as well as the obligations in the sense of art. 168 of SDA including drafting of a final report for the construction site pursuant to art. 168, par. 6 of SDA;
- Compliance check of the detailed design for the Bulgarian section and in particular of its part "Constructive" (in case conditions for substantial changes in the approved for the Bulgarian section technical design and in its parts, on which the detailed design is based, arise);
- Preparation of the technical passport pursuant to art. 176 of SDA and Ordinance 5 from 2006 for preparation of technical passports for construction sites. The technical

passport is part of the construction documentation of the construction site (Ordinance №5/2006 art.10(2)) and

- Providing expert support to the Contracting Entity upon commissioning of the pipe line on the Bulgarian territory – obtaining use permit according to the national legislation issued by the National Construction Control Directorate in Bulgaria.

## 16. Appendices and references to documents related to the Scope of services

This chapter contents references to documents related to the Scope of services of OE and list of the documents that attached hereto.

The main document related to the Services of TPI, see p.9.4, is the Greek technical regulation “Natural gas pipelines with maximum operation pressure above 16 bar” (Τεχνικός Κανονισμός «Συστήματα μεταφοράς Φυσικού Αερίου με Μέγιστη Πίεση Λειτουργίας άνω των 16 bar»).

This regulation includes following technical jobs specifications related to the Services of the TPI:

- Technical job specification 970/2, High pressure (HP) transmission systems, Shop inspection of equipment and materials for NGT project;
- Technical job specification 970/3, High pressure (HP) transmission systems, Inspection and test instructions;
- Technical job specification 199/4, High pressure (HP) transmission systems, Welding
- Technical job specification 180/1, High pressure (HP) transmission systems, Welding inspection and
- Technical job specification 181/2, High pressure (HP) transmission systems, Pressure testing.

The above technical specifications in their up-to-date version can be found on the DESFA’s website ([www.desfa.gr](http://www.desfa.gr)).

Following documents shall be attached to the this Scope of services:

- Design basis memorandum, 10760-PHL-EN-00-001;
- General explanatory note, IGB-04-FEED-I.1;
- Maps for both sections:
  - Bulgarian territory, routing Maps, 1:5 000;
  - Greece territory, routing Maps, 1:5 000.

Handwritten signature or initials in blue ink.

- Preliminary inspection and test plan for the field Inspection and
- Preliminary Project schedule – key dates – Appendix 4 of the draft Agreement.

The OE will be provided with the complete set of technical documentation - FEED for the Greek section and technical design for the Bulgarian section upon execution of the Agreement.



## APPENDIX 2: EQUIPMENT AND FACILITIES

### 1. Head office of the Consultant

Except for a core coordination team which shall be available to the Client at the Client's headquarters, the Consultant shall base its project team on site throughout construction.

For that purpose, the Consultant shall provide its head office for the provision of the Services in the vicinity of the Client's headquarters, in Sofia, for the Services during Phase 2, at his costs, included in the lump sum for the performance of the Services during Phase 2. The head office shall be for that core coordination team and available until completion of the Services.

In addition to the usual office equipment and furniture the Consultant's head office shall provide a meeting room with capacity to seat approx. twenty (20) persons, with appropriate multimedia equipment.

### 2. Site Accommodation and Facilities

The Client shall make available to the Consultant, by procuring that the contractor appointed under the Works Contract makes available to the Consultant, the site accommodation and facilities described as being the responsibility of (or otherwise to be provided or made available by) the contractor appointed under the Works Contract, to the extent described as being made available to the Consultant, in this paragraph 2.

#### 2.1 General

The contractor appointed under the Works Contract shall be responsible for providing site offices (accommodation and facilities) for the Client and his representatives, including the Consultant's site personnel, and shall be responsible for all costs associated with land rental, erection and installation, establishment of the compounds, provision of services, accommodation areas, cabins and the like and all maintenance and operation of the above for the duration of construction, including clearing away on completion and fully reinstating the land upon completion of the Works (as defined in the Works Contract).

The location of above mentioned facilities is subject to Client's approval under the Works Contract.

The contractor appointed under the Works Contract shall obtain at his own care and cost all necessary planning permissions or consent required by the applicable laws for the setting up of the Client's and his representatives', including the Consultant's site personnel, site offices and all other facilities.

Service connections, maintenance of networks and service supplies with all public utility companies for the Client's and his representatives', including the Consultant's site personnel, site offices and facilities, shall be provided by the contractor appointed under the Works Contract.

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## 2.2 Site offices to be provided to the Client and Consultant

The contractor appointed under the Works Contract shall provide, maintain and operate at his own care and cost office accommodation for the use of the working team of the Consultant as well as for a team of the Client, in the Greek and the Bulgarian sections, as follows:

- Greek section:
  - One (1) site office for the total length of the pipeline in the Greek section and the associated above ground installations, during the implementation of the Works Contract up to the issuance of the Taking Over Certificate (for the respective section, if applicable) under the Works Contract.
  
- Bulgarian section:
  - One (1) main site office during the implementation of the Works Contract up to the issuance of the Taking Over Certificate (for the respective section, if applicable) under the Works Contract and the issue of the use permit on Bulgarian territory; and
  - Secondary site offices for the construction of each of the following above ground installations:
    - ✓ gas metering station (GMS);
    - ✓ operation and maintenance base; and
    - ✓ two automated gas regulation stations (AGRS),

to be established one (1) month prior to relevant construction activities, up to the issuance of the Taking Over Certificate under the Works Contract for the Works or the respective section (if applicable).

## 2.3 Accommodation at main site office in Bulgarian section and site office in Greek section

The accommodation of the joint working team of the Client and the Consultant at the main site office in the Bulgarian section and the site office in the Greek section shall meet the following requirements:

- A container office, ISOBOX type or similar or already existing residential or office facilities (i.e. office rental) for ten (10) persons plus kitchen, toilets, etc. providing all comforts in terms of temperature, light, hygiene and fire safety;
- The offices shall provide ten (10) standard office places with all usual furniture and additional office equipment; and
- A separate room shall be designated as the meeting room, complete with a conference table and chairs to sit at least twelve (12) persons.

## 2.4 Accommodation at secondary site offices in Bulgarian section

The accommodation of the working team for the Consultant together with a team of the Client at the secondary site offices in the Bulgarian section shall meet the following requirements:

- A container office, ISOBOX type or similar or already existing residential or office facilities (i.e. office rental) for five (5) persons plus kitchen, toilets, etc. providing all comforts in terms of temperature, light, hygiene and fire safety; and

- The offices shall provide five (5) standard office places with all usual furniture and additional office equipment.

### 3. Vehicles

The Client shall make available to the Consultant, by procuring that the contractor appointed under the Works Contract makes available to the Consultant, the vehicles described as being the responsibility of (or otherwise to be provided or made available by) the contractor appointed under the Works Contract, to the extent described as being made available to the Consultant, in this paragraph 3.

The contractor appointed under the Works Contract shall provide the working team of the Consultant as well as the team of the Client with vehicles during the implementation of the Works Contract up to the issuance of the Taking Over Certificate for the Works under the Works Contract, and the issue of the use permit on Bulgarian territory.

The contractor appointed under the Works Contract shall provide twelve (12) brand-new vehicles as specified herein below for the exclusive use of the working team of the Consultant and for the team of the Client. At least eight (8) vehicles will be provided to the Consultant's personnel.

The vehicles shall be equipped with four-wheel drive, suitably motorized, with air-conditioning, four (4) seats, all weather and high-quality tires and all required safety accessories

The vehicles shall be fully insured (fully comprehensive insurance cover) and covered by a road assistance policy.

Vehicles procurement, insurance, road tax, road assistance, fuel, maintenance and repair costs shall be borne by the contractor appointed under the Works Contract.

Adequate car parking space shall be provided for the vehicles of the working teams of the Client and the Consultant in site office areas.

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### APPENDIX 3: REMUNERATION AND PAYMENT

#### 1. Entitlement to payment by instalments

- 1.1 The currency applicable to this Agreement is Euros.
- 1.2 The fee payable to the Consultant is the lump sum of 5 670 000 [exclusive of VAT] (comprising the lump sums of 283 500 in respect of Phase 1 and 5 386 500 in respect of Phase 2) and shall be paid in instalments.

#### 2. Need for supporting documentation

- 2.1 Each application for payment of an instalment of the fee and/or for a sum in respect of any Variation and/or in respect of any Exceptional Costs ("**Application**") shall be accompanied by such supporting documents that are reasonably necessary (and which the Client may reasonably require) to enable to Client to check and verify the accuracy of the details in the Application.
- 2.2 Applications may only be issued in relation to completed Services following the issue in relation to those Services of the relevant Acceptance Certificate.

#### 3. Need for valid VAT invoice

The Consultant will deliver to the Client a valid [VAT] invoice in respect of each Application made or, as the case may be, each Varied Sum (defined in paragraph 6) ten (10) days after issuing each Application.

#### 4. Due date and final date for payment

Payment of the amount applied for in each Application or, as the case may be, each Varied Sum will become due to the Consultant on the date of receipt, by the Client, of the valid VAT invoice issued in accordance with paragraph 3 ("**Due Date**"). The final date for payment of each amount payable in respect of an Application or, as the case may be, each Varied Sum will be twenty eight (28) days from the Due Date ("**Final Payment Date**").

#### 5. Consultant's payment notice

Each Application shall specify:

- 5.1 the sum that the Consultant considers will become due on the Due Date ("**Notified Sum**"); and
- 5.2 the basis on which that sum is calculated.

#### 6. Client's counter notice

Not less than five (5) days before the Final Payment Date, the Client may notify the Consultant that it intends to pay less than the Notified Sum ("**Counter Notice**"). The Counter Notice shall specify:

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6.1 the sum that the Client considers to be due on the date the Counter Notice is served ("**Varied Sum**"); and

6.2 the basis on which that sum is calculated.

**7. Payment of notified sum**

Subject to paragraph 9 and unless the Client has served a Counter Notice, the Client shall pay the Notified Sum to the Consultant on or before the Final Payment Date.

**8. Interest on late payments**

In the event that the Client does not make payment within the time stated in paragraph 4, the Client will pay financing charges (interest) to the Consultant on any amount that is overdue (which is to be calculated from the Final Payment Date), for the period until payment of the overdue sum is received by the Consultant, at a rate equivalent to five per cent (5%) above the rate of Euribor on the Effective Date. It is agreed that the provisions of this paragraph constitute a substantial remedy for the purposes of the Late Payment of Commercial Debts (Interest) Act 1998.

**9. Payments in event of Consultant's insolvency**

Notwithstanding paragraphs 6 and 7, in the event of the Consultant being subject to an event as described in Sub-Clause 6.4.1.2 five (5) days or less before the Final Payment Date, the Client shall not be required to pay the Consultant the Notified Sum on or before the Final Payment Date.

**10. Applications Table**

The Consultant will be entitled to make an Application in accordance with the tables below. Applications in relation to any Variation are to be made immediately following completion of the Services as varied by the Variation. Applications in relation to Exceptional Costs are to be made immediately following the Consultant incurring such costs.

**Phase 1**

<b>Stage of Project following completion of which an Application for the corresponding percentage instalment of the fee may be made</b>	<b>Corresponding instalment of the lump sum payable in relation to Phase 1 (as percentage %)</b>
Preselection of the applicants for the award of the Works Contract	10%
Preselection of the applicants for the award of the Line Pipe Supply Contract.	5 %
Completion of evaluation of offers in the procedure for award of the Works Contract.	45 %

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Completion of evaluation of the offers in the procedure for award of the Line Pipe Supply Contract.	20%
Signature of Works Contract	10%
Signature of Line Pipe Supply Contract	10%

**Phase 2**

An amount equal to twenty five per cent (25%) of the lump sum payable in relation to Phase 2 (5 386 500) shall be paid in equal instalments at three (3) monthly intervals (as stated in the Works Contract) ("**Baseline Payment**").

An amount equal to seventy five per cent (75%) of the lump sum payable in relation to Phase 2 (5 386 500) shall be paid upon completion of the following stages of the Project ("**Progress Payment**"):

<b>Stage of Project following completion of which an Application for the corresponding percentage instalment of the fee may be made</b>	<b>Corresponding instalment of Progress Payment (as percentage %)</b>
30% completion of the works under the Works Contract	25%
50% completion of the works under the Works Contract	20%
75% completion of the works under the Works Contract	25%
The issue of the Taking-Over Certificate, under the Works Contract, for the Works	25%
Successful completion of the Project (meaning completion of the Project (i) without cost overrun and (ii) without delay beyond the time for completion as stated in the Works Contract except where the material cause of such cost overrun and/or delay is a cause other than any act, omission or default of the contractor under the Works Contract and/or the Consultant).	5%

## 11. Hourly rates

The hourly rates to be used to determine the value of a Variation under Clause 5.2 [*Agreement of Variation Value and Impact*] and to determine Exceptional Costs for the extra time spent by the Consultant's personnel in the performance of the Services pursuant to Clause 7.1.2 [*Payment to the Consultant*] shall be the hourly rates set out in Appendix 9 [*Price Offer*].

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## APPENDIX 4: PROGRAMME

### Programme - Key Dates

Construction permit for the Bulgarian territory: Q3 2017

Decision for exemption of third party access: Q3 2018

Tender launch for the Line Pipes Supply Contract and the Works Contract: Q4 2017

Launch of procedures for assignment of auxiliary activities necessary to start construction - construction supervision and archaeological research: Q4 2017

Publication of an intergovernmental agreement for the project: Q2 2019

Signing the Line Pipe Supply Contract: Q2 2019

Signing the Works Contract: Q2 2019

Construction permit for the Greek territory: Q2 2019

Final financial phase of the Project (approval of final business plan, signing of contracts for debt loans, decision for grant under OPIC: Q3 2019

Start of construction: End of Q2 2019

Commercial Operation Date: Q1 of 2021

2019

## APPENDIX 5: RULES FOR ADJUDICATION

### General

Any reference in this Agreement to the Rules for Adjudication shall be deemed to be a reference to these Rules.

Definitions in this Agreement shall apply in these Rules.

### Notice of Intention to seek Adjudication

1. (1) Either Party to this Agreement (the "referring Party") may give written notice (the "notice of adjudication") of his intention to refer any Dispute to adjudication.
  - (2) The notice of adjudication shall be given to the other Party to this Agreement and shall be written in English.
  - (3) The notice of adjudication shall set out briefly:
    - (a) the nature and a brief description of the Dispute and of the parties involved;
    - (b) details of where and when the Dispute has arisen;
    - (c) the nature of the redress which is sought; and
    - (d) the names and addresses of the Parties to this Agreement (including, where appropriate, the addresses which the Parties have specified for the giving of notices).
2. (1) Following the giving of a notice of adjudication, the Parties shall seek to agree the identity of the adjudicator. If the identity of an adjudicator has not been agreed within fourteen (14) days following the notice of adjudication, then the referring Party may apply, with a copy of the application to the other Party, to any appointing authority named in this Agreement or, if none, to the President of FIDIC or his nominee, to appoint an adjudicator, and such appointment shall be final and conclusive.
  - (2) A person requested to act as adjudicator in accordance with the provisions of paragraph (1) shall indicate whether or not he is willing to act within two (2) days of receiving the request.
  - (3) In this paragraph, and in paragraphs 5 and 6 below, an "adjudicator nominating body" shall mean the body (not being a natural person and not being a party to the Dispute) which is the appointing authority named in this Agreement or, if none, the President of FIDIC or his nominee.
3. The request referred to in paragraphs 2, 5 and 6 shall be accompanied by a copy of the notice of adjudication.
4. Any person requested or selected to act as adjudicator in accordance with paragraphs 2, 5 or 6 shall be a natural person acting in his personal capacity. A person requested or selected to act as an adjudicator shall not be an employee of either of the Parties and shall declare any interest, financial or otherwise, in any matter relating to the Dispute.

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5. (1) The adjudicator nominating body referred to in paragraphs 2(1) and 6(1), 5(3)(b) and 6(1)(c) must communicate the selection of an adjudicator to the referring Party within five (5) days of receiving a request to do so.
  - (2) Where the nominating body or the adjudicator nominating body fails to comply with paragraph (1), the referring Party may—:
    - (a) agree with the other Party to request a specified person to act as adjudicator; or
    - (b) request any other adjudicator nominating body (a body which holds itself out publicly as a body which will select an adjudicator on an international FIDIC project when requested to do so by a referring party) to select a person to act as adjudicator.
  - (3) The person requested to act as adjudicator in accordance with the provisions of paragraphs (1) or (2) shall indicate whether or not he is willing to act within two (2) days of receiving the request.
6. (1) Where an adjudicator indicates to the Parties that he is unable or unwilling to act, or where he fails to respond in accordance with paragraph 2(2), the referring Party may:
  - (a) request another person (if any) specified in this Agreement to act as adjudicator; or
  - (b) request the nominating body (if any) referred to in this Agreement to select a person to act as adjudicator; or
  - (c) request any other adjudicator nominating body to select a person to act as adjudicator.
  - (2) The person requested to act in accordance with the provisions of paragraph (1) shall indicate whether or not he is willing to act within two (2) days of receiving the request.
7. (1) Where an adjudicator has been selected in accordance with paragraphs 2, 5 or 6, the referring Party shall, not later than twenty one (21) days from the date of the notice of adjudication, refer the Dispute in writing (the "referral notice") to the adjudicator.
  - (2) A referral notice shall be accompanied by copies of, or relevant extracts from, this Agreement and such other documents as the referring Party intends to rely upon.
  - (3) The referring Party shall, at the same time as he sends to the adjudicator the documents referred to in paragraphs (1) and (2), send copies of those documents to the other Party.
8. (1) The adjudicator may, with the consent of all the parties to those Disputes, adjudicate at the same time on more than one Dispute under this Agreement.
  - (2) The adjudicator may, with the consent of all the parties to those Disputes, adjudicate at the same time on related Disputes under different contracts, whether or not one or more of those parties is a party to those Disputes.
  - (3) All the parties in paragraphs (1) and (2) respectively may agree to extend the period within which the adjudicator may reach a decision in relation to all or any of these Disputes.
  - (4) Where an adjudicator ceases to act because a Dispute is to be adjudicated on by another person in terms of this paragraph, that adjudicator's fees and expenses shall be determined in accordance with paragraph 27.

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9. (1) An adjudicator may resign at any time on giving notice in writing to the Parties.
  - (2) An adjudicator must resign where the Dispute is the same or substantially the same as one which has previously been referred to adjudication, and a decision has been taken in that adjudication.
  - (3) Where an adjudicator ceases to act under paragraph 9(1):
    - (a) the referring Party may serve a fresh notice under paragraph 1 and shall request an adjudicator to act in accordance with paragraphs 2 to 7; and
    - (b) if requested by the new adjudicator and insofar as it is reasonably practicable, the Parties shall supply him with copies of all documents which they had made available to the previous adjudicator.
  - (4) Where an adjudicator resigns in the circumstances referred to in paragraph (2), or where a Dispute varies significantly from the Dispute referred to him in the referral notice and for that reason he is not competent to decide it, the adjudicator shall be entitled to the payment of such reasonable amount as he may determine by way of fees and expenses reasonably incurred by him. The Parties shall be jointly and severally liable for any sum which remains outstanding following the making of any determination on how the payment shall be apportioned.
10. Where either Party objects to the appointment of a particular person as adjudicator, that objection shall not invalidate the adjudicator's appointment nor any decision he may reach in accordance with paragraph 20.
11. (1) The Parties may at any time agree to revoke the appointment of the adjudicator. The adjudicator shall be entitled to the payment of such reasonable amount as he may determine by way of fees and expenses incurred by him. The Parties shall be jointly and severally liable for any sum which remains outstanding following the making of any determination on how the payment shall be apportioned.
- (2) Where the revocation of the appointment of the adjudicator is due to the default or misconduct of the adjudicator, the Parties shall not be liable to pay the adjudicator's fees and expenses.

#### **Powers of the adjudicator**

12. The adjudicator shall:
- (a) act impartially in carrying out his duties and shall do so in accordance with any relevant terms of this Agreement and shall reach his decision in accordance with the applicable law in relation to this Agreement;
  - (b) avoid incurring unnecessary expense;
  - (c) immediately disclose in writing to the parties anything of which he becomes aware which could affect his impartiality or independence; and
  - (d) conduct the adjudication proceedings in English or such other language as may be agreed between the Parties and the adjudicator (including any hearings) and all communications between the adjudicator and the Parties shall be in that language. All such communications shall be copied to the other party.

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13. The adjudicator may take the initiative in ascertaining the facts and the law necessary to determine the Dispute, and shall decide on the procedure to be followed in the adjudication. In particular he may:
- (a) request either Party to supply him with such documents as he may reasonably require including, if he so directs, any written statement from any Party to this Agreement supporting or supplementing the referral notice and any other documents given under paragraph 7(2);
  - (b) decide upon the adjudicator's own jurisdiction, and as to the scope of any Dispute referred to him;
  - (c) decide to conduct a hearing in which event he shall decide on the date, place and duration for the hearing. The adjudicator may request that written statements from the Parties be presented to him prior to, at or after the hearing;
  - (d) subject to obtaining any necessary consent from a third party or parties, make such site visits and inspections as he considers appropriate, whether accompanied by the parties or not;
  - (e) subject to obtaining any necessary consent from a third party or parties, carry out any tests or experiments;
  - (f) obtain and consider such representations and submissions as he requires, and, provided he has notified the parties of his intention, appoint experts, assessors or legal advisers;
  - (g) give directions as to the timetable for the adjudication, any deadlines, or limits as to the length of written documents or oral representations to be complied with;
  - (h) issue other directions relating to the conduct of the adjudication; and
  - (i) refuse admission to hearings to any persons other than the Client, the Consultant and their respective representatives, and to proceed in the absence of any party who the adjudicator is satisfied received notice of the hearing.
14. The Parties shall comply with any request or direction of the adjudicator in relation to the adjudication.
15. If, without showing sufficient cause, a Party fails to comply with any request, direction or timetable of the adjudicator made in accordance with his powers, fails to produce any document or written statement requested by the adjudicator, or in any other way fails to comply with a requirement under these provisions relating to the adjudication, the adjudicator may:
- (a) continue the adjudication in the absence of that Party or of the document or written statement requested;
  - (b) draw such inferences from that failure to comply as circumstances may, in the adjudicator's opinion, be justified; and
  - (c) make a decision on the basis of the information before him attaching such weight as he thinks fit to any evidence submitted to him outside any period he may have requested or directed.

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The adjudicator shall not give advice to the Parties or their representatives concerning the conduct of the Project or which the Services form part other than in accordance with these Rules.

16. (1) Subject to any agreement between the Parties to the contrary, and to the terms of paragraph (2) below, either party to the Dispute may be assisted by, or represented by, such advisers or representatives (whether legally qualified or not) as he considers appropriate.
- (2) Where the adjudicator is considering oral evidence or representations, a Party may not be represented by more than one person, unless the adjudicator gives directions to the contrary.
17. The adjudicator shall consider any relevant information submitted to him by either of the Parties and shall make available to them any information to be taken into account in reaching his decision.
18. The adjudicator and either Party shall not disclose to any other person any information or document provided to him in connection with the adjudication which the party supplying it has indicated is to be treated as confidential, except to the extent that it is necessary for the purposes of, or in connection with, the adjudication.
19. (1) The adjudicator shall reach his decision not later than:
  - (a) sixty three (63) days after the date of the referral notice mentioned in paragraph 7(1); or
  - (b) seventy seven (77) days after the date of the referral notice if the referring Party so consents; or
  - (c) such period exceeding sixty three (63) days after the referral notice as the Parties to the Dispute may, after the giving of that notice, agree.
- (2) Where the adjudicator fails, for any reason, to reach his decision in accordance with paragraph (1)
  - (a) either Party may serve a fresh notice under paragraph 1 and shall request an adjudicator to act in accordance with paragraphs 2 to 7; and
  - (b) if requested by the new adjudicator and insofar as it is reasonably practicable, the Parties shall supply him with copies of all documents which they had made available to the previous adjudicator.
- (3) As soon as possible after he has reached a decision, the adjudicator shall deliver a copy of that decision to each of the Parties.

#### **Adjudicator's decision**

20. The adjudicator shall decide the matters in Dispute. He may take into account any other matters which the Parties agree should be within the scope of the adjudication or which are matters under this Agreement which he considers are necessarily connected with the Dispute. In particular, he may:
  - (a) open up, revise and review any decision taken or any certificate given by any person referred to in this Agreement unless this Agreement states that the decision or certificate is final and conclusive;

- (b) decide that any of the parties to the Dispute is liable to make a payment under this Agreement (in the currency of this Agreement) and when that payment is due and the final date for payment; and/or
  - (c) having regard to any term of this Agreement relating to the payment of interest decide the circumstances in which, and the rates at which, and the periods for which simple or compound rates of interest shall be paid.
21. In the absence of any directions by the adjudicator relating to the time for performance of his decision, the Parties shall be required to comply with any decision of the adjudicator immediately on delivery of the decision to the Parties in accordance with this paragraph.
22. The adjudicator shall provide reasons for his decision. The adjudicator shall not be called as a witness by the Parties to give evidence concerning any Dispute in connection with, or arising out of, this Agreement.

#### **Effects of the decision**

23. (1) In his decision, the adjudicator may, if he thinks fit, order either of the Parties to comply peremptorily with his decision or any part of it.
- (2) The decision of the adjudicator shall be binding on the Parties, and they shall comply with it until the Dispute is finally determined by international arbitration (in accordance with the terms of this Agreement) or by agreement between the Parties.
24. The adjudicator shall treat the details of this Agreement and all activities and hearings of the adjudicator as confidential and shall not disclose the same without the prior written consent of the Parties. The adjudicator shall not, without the consent of the Parties, assign or delegate any of his work under these Rules or engage legal or technical assistance.
25. The adjudicator shall not be liable for anything done or omitted in the discharge or purported discharge of his functions as adjudicator unless the act or omission is in bad faith, and any employee or agent of the adjudicator shall be similarly protected from liability.
26. If the adjudicator shall knowingly breach any of the provisions of Rule 12(a) or act in bad faith, he shall not be entitled to any fees or expenses hereunder and shall reimburse each of the Parties for any fees and expenses properly paid to him if, as a consequence of such breach any proceedings or decisions of the adjudicator are rendered void or ineffective.

#### **Payment**

27. The adjudicator shall be paid the fees and expenses set out in the adjudicator's agreement.

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## APPENDIX 6: GENERAL CONDITIONS OF DISPUTE ADJUDICATION AGREEMENT

### 1. Definitions

"Dispute Adjudication Agreement" is a tripartite agreement by and between:

- (a) the "Client";
- (b) the "Consultant"; and
- (c) the "Adjudicator".

The Client and the Consultant have entered (or intend to enter) into a contract, which is called the "Agreement" and is defined in the Dispute Adjudication Agreement, which incorporates this Appendix. In the Dispute Adjudication Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Agreement.

### 2. General Provisions

- (a) The Dispute Adjudication Agreement shall take effect when the Client, the Consultant and Adjudicator have respectively each signed a dispute adjudication agreement.
- (b) This employment of the Adjudicator is a personal appointment. No assignment or subcontracting of the Dispute Adjudication Agreement is permitted without the prior written agreement of all the parties to it.

### 3. Warranties

- (a) The Adjudicator warrants and agrees that he/she is and shall be impartial and independent of the Client and Consultant. The Adjudicator shall promptly disclose to each of them any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.
- (b) When appointing the Adjudicator, the Client and the Consultant relied upon the Adjudicator's representations that he/she is:
  - (i) experienced in the work which the Consultant is to carry out under the Agreement;
  - (ii) experienced in the interpretation of contract documentation; and
  - (iii) fluent in the language for communications defined in the Agreement.

### 4. General Obligations of the Adjudicator

The Adjudicator shall:

- (a) have no interest financial or otherwise in the Client or the Consultant, nor any financial interest in the Agreement except for payment under the Dispute Adjudication Agreement;

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- (b) not previously have been employed as a consultant or otherwise by the Client or the Consultant, except in such circumstances as were disclosed in writing to the Client and the Consultant before they signed the Dispute Adjudication Agreement;
- (c) have disclosed in writing to the Client and the Consultant before entering into the Dispute Adjudication Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Client or the Consultant, and any previous involvement in the overall project of which the Agreement forms part;
- (d) not, for the duration of the Dispute Adjudication Agreement, be employed as a consultant or otherwise by the Client or the Consultant, except as may be agreed in writing by the Client and the Consultant;
- (e) comply with the Rules for Adjudication contained in Appendix 5 of the Agreement and with Sub-Clause 10.2 of the Agreement;
- (f) not give advice to the Client or the Consultant concerning the conduct of the Agreement, other than in accordance with the Rules for Adjudication;
- (g) not enter into discussions or make any agreement with the Client or the Consultant regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Adjudication Agreement;
- (h) ensure his/her availability for any site visit and hearings as are necessary; and
- (i) treat the details of the Agreement and all the his/her activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Client and the Consultant.

**5. General Obligations of the Client and the Consultant**

- (a) The Client and the Consultant shall not request advice from or consultation with the Adjudicator regarding the Agreement. The Client and the Consultant shall be responsible for compliance with this provision.
- (b) The Client and the Consultant undertake to each other and to the Adjudicator that the Adjudicator shall not, except as otherwise agreed in writing by the Client, Consultant and the Adjudicator:
  - (i) be appointed as an arbitrator in any arbitration under the Agreement;
  - (ii) be called as a witness to give evidence concerning any Dispute before arbitrator(s) appointed for any arbitration under the Agreement; or
  - (iii) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Adjudicator's functions, unless the act or omission is shown to have been in bad faith.
- (c) The Client and the Consultant hereby jointly and severally indemnify and hold the Adjudicator harmless against and from claims from which he/she is relieved from liability under the preceding paragraph.

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## 6. Payment

- (a) The Adjudicator shall be paid as follows, in the currency named in the Dispute Adjudication Agreement:
  - (i) a daily fee which shall be considered as payment in full for:
    - (a) each working day spent reading submissions, attending hearings (if any), preparing decisions, or making site visits (if any); and
    - (b) each day or part of a day up to maximum of two (2) days travel time in each direction for the journey (if any) between the Adjudicator's home and site or another location of a meeting with the Client and the Consultant;
  - (ii) all reasonable expenses incurred in connection with the Adjudicator's duties, including the cost of secretarial services, telephone calls, courier charges, faxes and telexes, travel expenses, hotel and subsistence costs; a receipt shall be required for each item in excess of five percent (5%) of the daily fee referred to in paragraph 6(a)(i); and
  - (iii) any taxes properly levied in the Country on payments made to the Adjudicator (unless a national or permanent resident of the Country) under this paragraph 6.
- (b) The daily fee shall be as specified in the Dispute Adjudication Agreement.
- (c) Immediately after the Dispute Adjudication Agreement takes effect, the Adjudicator shall, before engaging in any activities under the Dispute Adjudication Agreement, submit to the Consultant, with a copy to the Client, an invoice for (a) an advance of twenty-five percent (25%) of the estimated total amount of daily fees to which he/she will be entitled and (b) an advance equal to the estimated total expenses that he/she shall incur in connection with his/her duties. Payment of such invoice shall be made by the Consultant upon his receipt of the invoice. The Adjudicator shall not be obliged to engage in activities under the Dispute Adjudication Agreement until he or she has been paid in full for the invoice submitted under this paragraph.
- (d) Thereafter the Adjudicator shall submit to the Consultant, with a copy to the Client, invoices for the balance of his/her daily fees and expenses, less the amounts advanced. The Adjudicator shall not be obliged to render its decision until invoices for all of his or her daily fees and expenses for making a decision shall have been paid in full.
- (e) Unless paid earlier in accordance with the above, the Consultant shall pay each of the Adjudicator's invoices in full within twenty eight (28) calendar days after receiving each invoice and shall apply to the Client under the Agreement for reimbursement of one-half of the amounts of these invoices. The Client shall then pay the Consultant in accordance with the Agreement.
- (f) If the Consultant fails to pay to the Adjudicator the amount to which he/she is entitled under the Dispute Adjudication Agreement, the Client shall pay the amount due to the Adjudicator and any other amount which may be required to maintain the operation of the adjudication; and without prejudice to the Client's rights or remedies. In addition to all other rights arising from this default, the Client shall be entitled to

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reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 7.2.2 of the Agreement.

- (g) If the Adjudicator does not receive payment of the amount due within twenty eight (28) days after submitting a valid invoice, the Adjudicator may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice to the Client and the Consultant. The notice shall take effect when received by them both. Any such notice shall be final and binding on the Client, the Consultant and the Adjudicator.

**7. Default of the Adjudicator**

If the Adjudicator fails to comply with any obligation under paragraph 4, he/she shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Client and the Consultant for any fees and expenses received by the Adjudicator, for proceedings or decisions (if any) of the adjudication which are rendered void or ineffective.

**8. Default of the Adjudicator**

Any dispute or claim arising out of or in connection with this Dispute Adjudication Agreement, or the breach, termination or invalidity thereof, shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

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**Form of Adjudication Agreement**

- (1) [NAME AND DETAILS OF CONTRACT]
- (2) [NAME AND ADDRESS OF CLIENT]
- (3) [NAME AND DETAILS OF CONSULTANT]
- (4) [NAME AND ADDRESS OF ADJUDICATOR]

**BACKGROUND:**

The Client and the Consultant have entered into the Agreement and desire jointly to appoint the Adjudicator to act as adjudicator to adjudicate a Dispute which has arisen in relation to [ ]<sup>1</sup>

**The Client, Consultant and Adjudicator jointly agree as follows:**

- 1. The conditions of this Dispute Adjudication Agreement comprise the "General Conditions of Dispute Adjudication Agreement", which is appended to the Agreement and the following provisions. In these provisions, which include amendments and additions to the General Conditions of Dispute Adjudication Agreement, words and expressions shall have the same meanings as are assigned to them in the General Conditions of Dispute Adjudication Agreement.
- 2. [*Details of amendments to the General Conditions of Dispute Adjudication Agreement, if any*]
- 3. In accordance with Clause 6 of the General Conditions of Dispute Adjudication Dispute Agreement the Adjudicator shall be paid a daily fee of [ ] per day.
- 4. In consideration of these fees and other payments to be made by the Client and the Consultant in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement, the Adjudicator undertakes to act as adjudicator in accordance with this Dispute Adjudication Agreement.
- 5. The Client and the Consultant jointly and severally undertake to pay the Adjudicator, in consideration of the carrying out of these services, in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement.
- 6. This Dispute Adjudication Agreement shall be governed by the law of England and Wales.

SIGNED by for and on behalf of the Client :

.....  
Signature of \*Director/Authorised Signatory/Co  
Secretary

.....  
Signature of Witness

.....  
Full name of above (print)

.....  
Full name of above (print)

.....  
Date of signing

.....

<sup>1</sup> A brief description or name of dispute to be added.

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.....  
Address of witness

SIGNED for and on behalf of the Consultant:

.....  
Signature of \*Director/Authorised Signatory/Co  
Secretary

.....  
Signature of Witness

.....  
Full name of above (print)

.....  
Full name of above (print)

.....  
Date of signing

.....

.....  
Address of witness

SIGNED for and on behalf of the Adjudicator:

.....  
Signature of \*Director/Authorised Signatory/Co  
Secretary

.....  
Signature of Witness

.....  
Full name of above (print)

.....  
Full name of above (print)

.....  
Date of signing

.....

.....  
Address of witness

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**APPENDIX 7: CONSULTANT'S SERVICES TEAM**

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<b>NAME</b>	<b>RANK</b>	<b>LEVEL OF DEDICATION (E.G. FULL TIME, OTHER)</b>	<b>LEVEL OF QUALIFICATION</b>
MATHIEU GLORIE	PROJECT MANAGER	FULL TIME (ACCORDING TO PROJECT NEEDS)	MASTER OF INDUSTRIAL ENGINEER  (BELGIUM)
LUC VAN KRIEKINGE	HEAD OF FIELDWORK SUPERVISION (CONSTRUCTION MANAGER)	FULL TIME (DURING CONSTRUCTION PHASE)	MASTER OF INDUSTRIAL ENGINEER  (BELGIUM)
ROMAN RUBAC	HEAD ENGINEERING (ENGINEERING MANAGER)	PART TIME	MASTER OF MECHANICAL ENGINEER  (CZECH REPUBLIC)
NIKOLAY PATEV	HEAD OF QA/QC & MATERIAL INSPECTION	FULL TIME (DURING CONSTRUCTION PHASE)	DOCTOR OF ENGINEER – PHD  (BULGARIA)
BOYAN IVANOV	QUALITY SYSTEM MANAGEMENT MANAGER	FULL TIME	MASTER DEGREE – CIVIL ENGINEER (UASG – SOFIA)
KALIN KONOV	HEALTH, SAFETY, SECURITY & ENVIRONMENTAL MANAGER	FULL TIME (ACCORDING TO PROJECT NEEDS)	MASTER IN MINING MECHANIZATION AND ELECTRIFICATION (UASG SOFIA)  SERTIFICAT FOR SAFETY AND HEALTH COORDINATOR #085/15.06.2018

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STANISLAV STOILOV	HEAD PROJECT MANAGEMENT SERVICES	FULL TIME (ACCORDING TO PROJECT NEEDS)	MASTER DEGREE - CIVIL ENGINEER (UASG – SOFIA)
PETROS MEIMARIDIS	THIRD PARTY INSPECTION – KEY EXPERT 1	FULL TIME (ACCORDING TO PROJECT NEEDS)	BACHELOR OF ENGINEER – MECHANICAL ENGINEERING  (UK)
LAMPROS LAMPIRIS	THIRD PARTY INSPECTION – KEY EXPERT 2	FULL TIME (ACCORDING TO PROJECT NEEDS)	MASTER OF ENGINEER – CHEMICAL ENGINEERING  (GREECE)

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**APPENDIX 8: TECHNICAL OFFER**

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## Appendix No 5 - Technical offer

By, Consortium TIBEY seat and registered address Sofia 1618, Bulgaria blvd 118, fl.4 [BULSTAT/UIC/PIN/number of registration and/ or another identifying information in accordance with the law of the country where the Participant is established]<sup>1</sup>: N/A - Participant in an open procedure for award of a public procurement with a subject matter:

### **„SELECTION OF OWNER’S ENGINEER FOR THE GREECE-BULGARIA NATURAL GAS INTERCONNECTOR PROJECT (IGB)“,**

represented by Alberto Verney, Personal Identity Number VRNLRT72L11D969E, personal ID card No YB1897405, issued on 16.01.2018 by the Ministry of Foreign affairs and international cooperation of Italy <sup>2</sup>, and Mert Candarli Personal Identity Number 86.01.26.87.64, personal ID card No U01279314, issued on 31.01.2011 by Region Municipality of Istanbul, Turkey <sup>3</sup>, in their capacity of Representatives<sup>4</sup> of the Participant

#### **DEAR LADIES AND GENTLEMEN,**

- I. We hereby present our offer for implementation of services for Owner’s Engineer for the Project “Gas Pipeline Interconnector Greece – Bulgaria”
- II. We hereby declare that we are fully acquainted with the procurement conditions and we accept them without any objections.
- III. We declare that the validity of our offer shall be 6 (six) months as of the deadline for submission of offers as indicated in the Public Procurement Documentation and we do not object to extend the validity of the offer in case it is required by the Contracting entity. We are aware that in case we are not able to provide such extension our offer will be removed from further participation in the procurement procedure.
- IV. By the preparation of the Offer the obligations concerning tax and social security contributions, environmental protection, employment protection and work conditions were fulfilled.
- V. We are aware with the content of the draft contract (template – Appendix No... 9) regarding public procurement with subject matter: **“SELECTION OF OWNER’S ENGINEER FOR THE GREECE-BULGARIA NATURAL GAS INTERCONNECTOR PROJECT (IGB)“,**” and I/we agree to all conditions in it.
- VI. <sup>5</sup>The information in Technical proposal shall be deemed confidential<sup>6</sup> since it contains trade secret of the Participant. We do not want the mentioned information to be disclosed by the Contracting entity except for the cases provided for by law.

We hereby present our offer for implementation of the activities within the scope of the Public procurement. We offer to perform the activities, subject to the Public procurement, in accordance with the requirements of the Contracting entity, as follows:

<sup>1</sup> Only the correct text shall remain.

<sup>2</sup> If the representative/s of the Participant is/are foreign person/s please indicate individualizing information in accordance with the laws of the country whose citizen is/are the respective person/s.

<sup>3</sup> If the representative/s of the Participant is/are foreign person/s please indicate individualizing information in accordance with the laws of the country whose citizen is/are the respective person/s.

<sup>4</sup> When the Participant is represented jointly by more than one person the stated data shall be filled for each one of them.

<sup>5</sup> To be completed at the discretion of the Participant.

<sup>6</sup> The Participants may not refer to confidentiality regarding the offers in their Tenders which are subject to assessment.

# Contant:

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## **1. Services during the selection procedure for project contractors prior to project start-up - Stage1**

### *1.1. Activity approach - tasks, steps, their sequence and coordination*

Taking into account the description of the Owner's Engineer for the Greece-Bulgaria natural gas Interconnector Project, we describe our proposal for the implementation the services of Phase 1, namely services during the tendering phase of the Project, presented a specific implementation approach, illustrated with a detailed description of certain tasks, steps, their sequence and coordination, so that the Client can obtain a detailed and comprehensive idea of how it will contribute to the achievement of the two main objectives of the project (Term and Budget). The description also aims to link our experience and that of team members to the individual needs of the Project and the Client so that resources can be effectively and appropriately targeted and applied, adapting to the current situation during the implementation of the services for successful implementation of the Project against the set objectives, program and specifics.

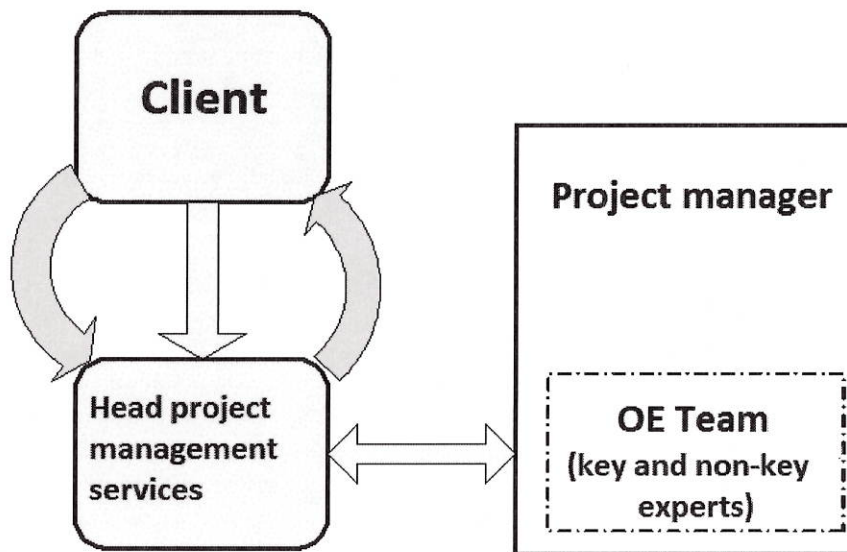
The Stage 1 approach to service delivery is based on the specifics of the tasks, will be further developed, applying horizontal principles in task allocation as well as optimal and ongoing coordination and communication with the Client. The commitments of the Client, described for Owner's Engineer /OE/ on the current activity are referred to the normative and procedural application, referring to the Public Procurement Act, the Regulations for its application and the related norms and rules. We feel that implementation steps need to be individualized and somewhat differentiated from strict engineering and construction specifics so that they can provide a solid foundation for Project implementation, a close interrelation between the separate elements and tasks, and a common and integrated view of achieving the objectives and tasks.

**The specific purpose of the activity is defined by the Contracting Authority as the award of a contract for a line pipe supplier and a construction contract, and the Owner's Engineer is required to assist with its expertise and experience in the efficient conduct of the procedures, ensuring the interest of the Contracting Authority**

As mentioned above, a horizontal approach will be applied to the implementation of this Stage, focusing on communication and coordination with the Client. The horizontal approach mainly concerns the relationship and the assignment of tasks within the team, and for this purpose the Expert "Project Management Services Manager" is responsible for his expertise in the organization and conduct of Stage 1 activities, who will be horizontally related to the rest the team composition in order to maximize the knowledge and experience of the other members and to focus appropriately on the points that are needed. In this way continuous interconnection and complementation of procedural and normative knowledge and experience with the technical, engineering or other experience required by the team members, will be carried out, maintaining continuous coordination and communication with the Contracting Authority so that its requirements can be performed on a regular basis and in accordance with the conditions set forth in the documentation.

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The contracting authority has stated that two restricted procedures will be carried out - for the selection of a pipe supplier and a constructor, according to the opportunities provided in the Public Procurement Act.

Given the fact that at the time of the implementation of stage 1 of the services under the current procedure, it is provided that the documentation for the two procedures, is to be prepared and available, the OE is not expected to have a commitment to prepare this documentation. However, if changes, clarifications or other additions to parts of the documentation are required, the OE team will be available to provide written proposals or other oral and / or written expertise.

It is envisaged that both procedures will be limited, which, pursuant to the Public Procurement Act, requires a pre-selection of the candidates. Although in the requirements provided by the Client, does not specify specific activities related to the pre-selection, the OE assumes that, once activities have been set up to illustrate the overall procedural performance of a public procurement award under the Public Procurement Act, and in particular because these are activities for the review and evaluation of tenders, all activities from the time of the announcement of the procedure to the signing of the contract and the completion of the appeal procedures fall within the scope of the activities of the OE. Thus, further down the proposal includes detailed steps for implementing the pre-selection.

**It should be noted that the Applicant will, in the event that he is selected as a Contractor of the current procedure, fully comply with the requirements of the applicable legislation, good engineering, administrative, legal and other practices in accordance with the activities envisaged. In the event that there is a contradiction between the stated and the normative requirements, of course the legislative requirements will prevail and they will be implemented in a timely manner.**

In general, the tasks of the OE at this stage can be summarized as organizational, expert and communicational.

The organizational tasks are related to:

- acquainting the "project management services expert" with the Contracting Authority's experts responsible for public procurements, technical and project documentation, etc. depending on the contracting entity's internal organization;

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- the actual receiving of the documentation of both public procurements and the technical one (electronic delivery or its electronic copy)
- informing on its various parts, including all other necessary members of the OE team, depending on their expertise;
- preparation of a detailed route map for conducting procedures, incl. the task allocation within the OE team;
- presenting and discussing the routemap to the Contracting Authority and, if necessary, its refinement;

Expert tasks are related, but are not limited to:

- making notes from all involved OE experts after acquainting with the parts of the received documentation.
- preparation of an OE preliminary statement on the documentation, the latter should not involve changes to the technical design, as it has already been approved for the purpose of issuing a Construction permit;
- Review received clarification requests and prepare a response during the bidding period
- Current Expert Assistance to the Client in accordance with the expertise of the OE team for the implementation of both procedures. Assistance may cover oral questions and case studies, as well as written ones, whereby the OE's proposals/statements will be provided in all possible ways according to the Client's needs, either verbally or in writing, by paper, e-mail or telephone.

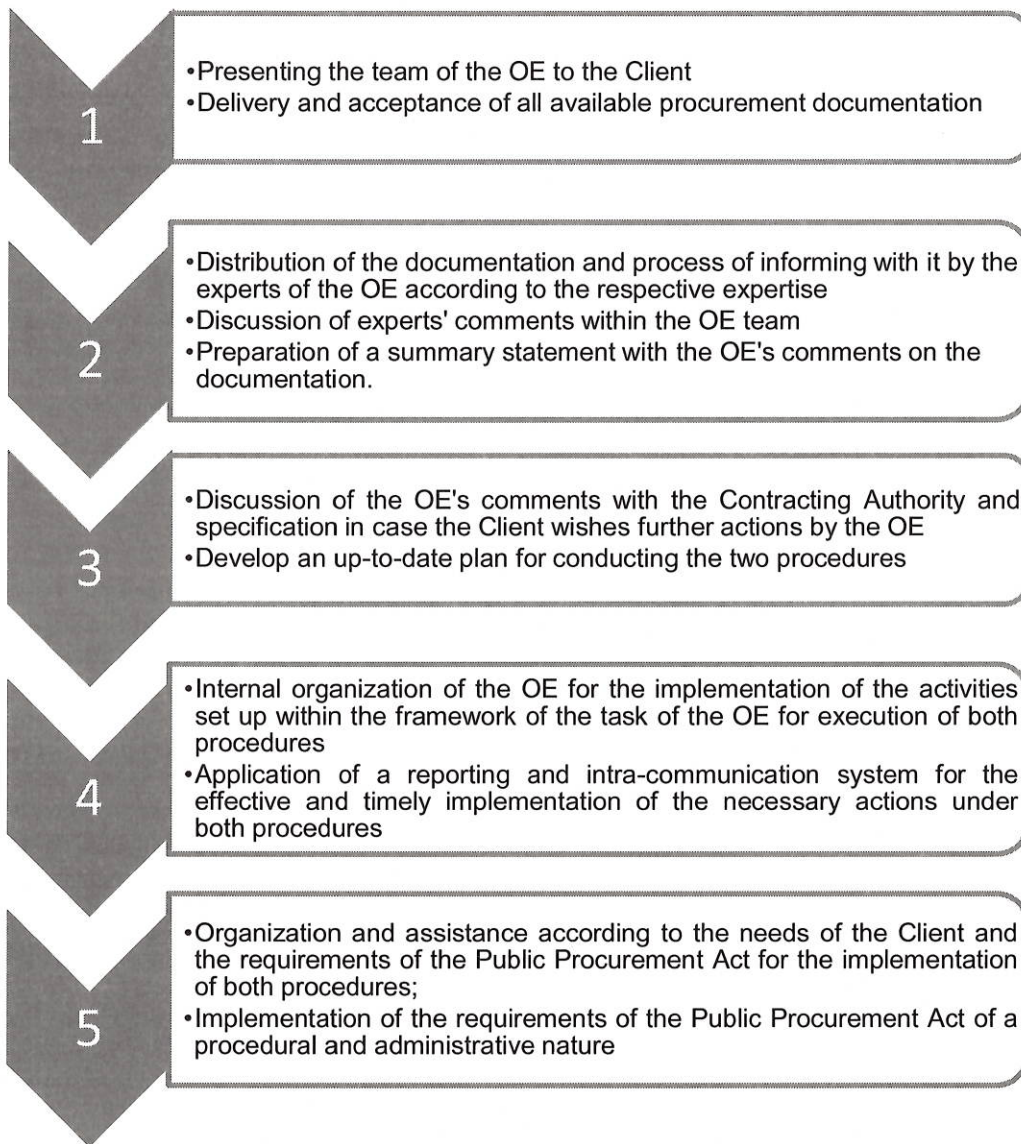
Communication tasks are related, but are not limited to:

- Personal acquaintance of the "project management services expert" and other necessary members of the OE team with the Client's responsible representatives for the implementation of Stage 1;
- Drawing up a contact sheet, including the representatives of both parties;
- Establishment of a communication organization, including a communication plan for distribution of the information and documentary flow;
- Timely and ongoing recall of the OE team to the issues and situations related to the implementation of Stage 1;

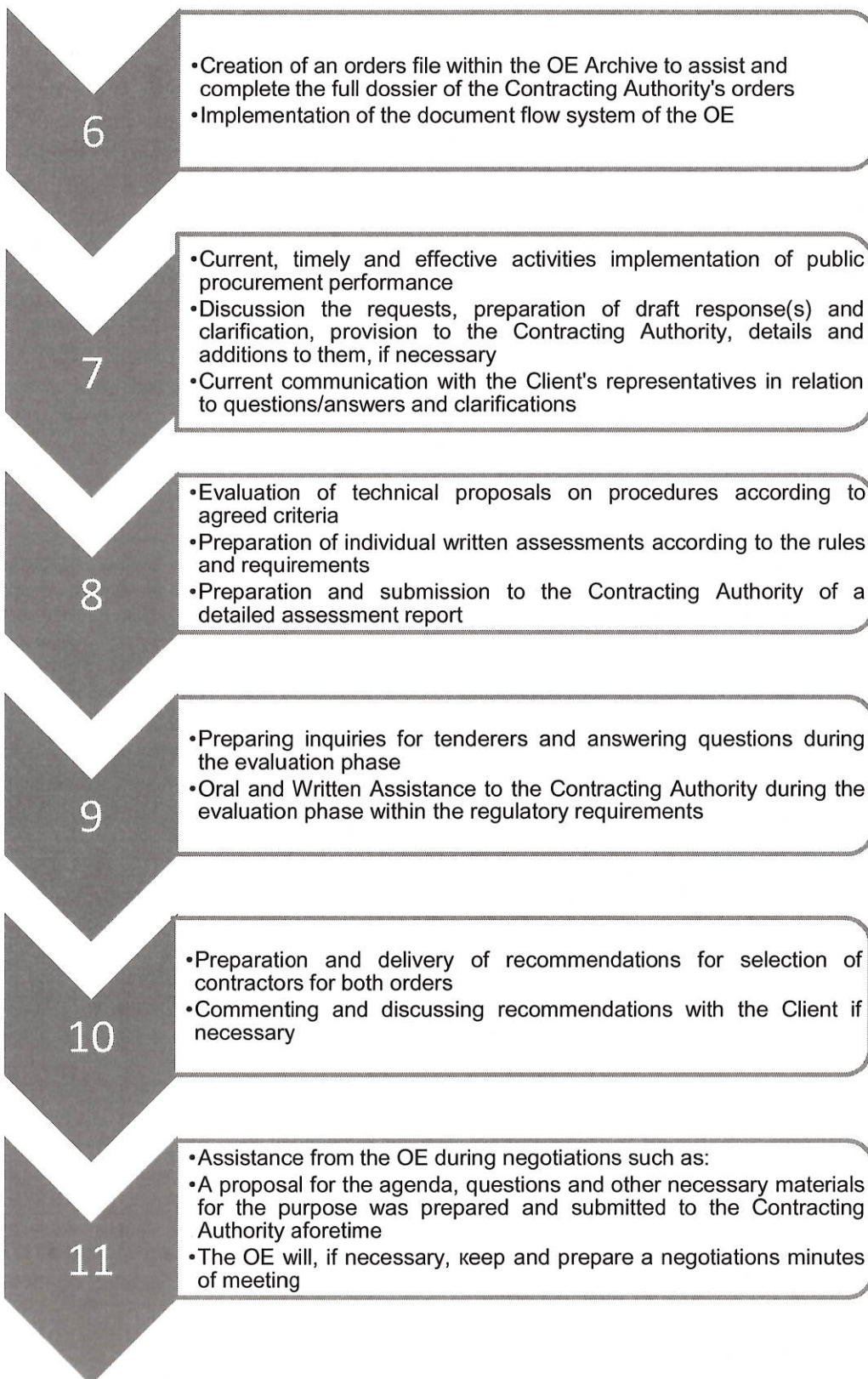
**The above-mentioned tasks above summarize the nature of the work on the implementation of Stage 1 of the services and will be complemented and extended in the course of their implementation with every task that arises and relates to the implementation of both orders, effectively, on time, according to the current legal situation and within the budget.**

The three types of tasks that were outlined above will be performed by and in the sequence of detailed steps, simultaneously, separately or in a complex way. In this sense, every step can refer to a specific task, some of the tasks or all tasks in order to achieve a systematic approach and effective action to implement the objectives set by the Client and accepted by the OE. The main steps are accompanied by sub-steps, which fully performance to lead to the complex and exhaustive execution of the set activities, the purposes of Stage 1 and to contribute to the achievement of the project objectives.

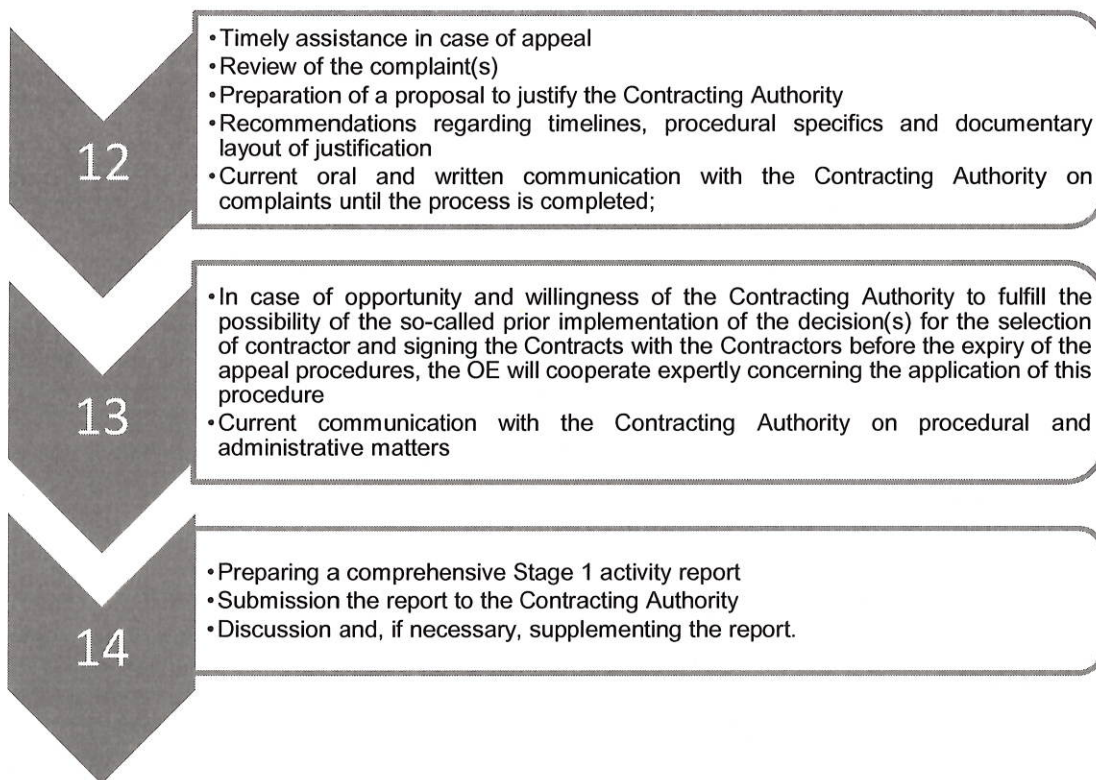
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## 1.2. Risks and mitigation measures

In general, the risks to a project, are the potential for deterioration of its indicators, as a result of the occurrence of a particular event. Risk management implies identifying these probably events, analyzing their potential impact as expected effect and extent, avoiding a maximum number of them, and choosing the possible approaches to manage the negative impact of others. In the specific case, the Client has identified and defined the main risks in advance.

The risks defined by the Client are divided into two sections - "A" Risks before completion and "B" Risks after completion as the logical sequence mainly concerns the implementation of the contracts for pipe supply and engineering, supply and construction. In practice, the defined sections, areas and individual risks refer to the activities following the implementation of Stage 1 of the current procedure. However, the implementation of Stage 1, namely the provision of full cooperation for the implementation of the two restricted procurements under the Public Procurement Act, could be linked to the defined risk of "e) complaints against decisions for award an EPC contract, respectively against Pipeline Supply Contract "(Risk 1) and" (b) Delay in Schedule due to Delayed Start of Work "(Risk 2).

### ❖ Way to overcome the risks

The risk management strategy of OE consists of organizing and moderating risk management seminars, constantly updating the risk register and supervising and monitoring the implementation of mitigation measures.

The first step in the process of overcoming risks is to identify those that would hinder work from the scope of the contract. In this step, we only identify risks without being interested in their significance. Once we have the risk register, we perform a quantitative risk analysis to determine the probability of occurrence, then perform a qualitative risk analysis by focusing on the significance of the risks. As a result of these analyzes, we identify the most hazardous risks for the project and compile a plan to overcome them, consisting of their timely updating, determining the probability of these risks occurring, and their impact force on the value and duration of the project,

as well as determining the party which is best placed to take the appropriate risk by allocating the responsibilities and timelines for performance of the obligations in the contracts.

The main factor for the successful completion of the project is the following of principles, tasks and objectives of the present contract, in particular the project specifics, the strict observance of the contract procedures by all parties and the establishment of transparency, cooperation and professionalism in the relations between the parties.

The risk provides the potential for adverse effects: harm, failure, loss, and others. This determines the negative side of its consequences.

The risk also gives rise to the desired effects and the achievement of goals: maximizing profits, gaining market position, overtaking competitors, etc., in the present order - effective utilization of European funds and compliance with Greek, Bulgarian and European legislation. This determines the positive side of the consequences.

Main Specifics:

- Communicating with risk is a process;
- The Risk is managed /accepted, avoided, shared, controlled/;
- The goal is to achieve minimized risks;
- The strategy is targeted, ie. is based on the goals the system seeks to achieve.

Criteria for evaluating the success of a project that can also serve to assess the impact of the risks on the project:

- Achieving the objectives and scope of the project;
- Implementation within the deadline;
- Minimal cost of realization;
- Achieving good performance quality.

Risk management is a process that examines, analyzes and tracks the development of existing risks in order to reduce the probability and/or the negative effect of their eventual occurrence, or to provide an opportunity to benefit from their occurrence.

Risk management aims to be a proactive process - to work with the potential opportunities before they become reality.

A large part of the risks that may arise in one undertaking may be foreseen. These are the risks that can be managed.

There is also a part that can not be predicted. Such risks can only be controlled by techniques such as the provision of financial and/or time and/or material reserves.

Risks will be classified and positioned in the following matrix:

<b>Impact</b>					
<b>Probability</b>	<b>Negligible</b>	<b>Minor</b>	<b>Average</b>	<b>Significant</b>	<b>Critical</b>
<b>Almost sure</b>	2	2	3	3	3
<b>Very often</b>	1	2	3	3	3

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<b>Often</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>3</b>
<b>Rarely</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Necessary</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>

**Legend:**

cells 1 - low risk - can be accepted and overcome with some internal reserves of resources (financial, labor, material, etc.);

cells 2 - medium risk - should be constantly monitored;

cells 3 - high risk - must be identified, managed and controlled.

Methods that apply to risk analysis can be qualitative, semiquantitative, and quantitative.

It is also a recommendation in ISO 31010:2011 that the application of qualitative and semiquantitative methods through the acquisition and processing of data and judgments by professionals who are competent in the relevant field, is in most cases sufficient in practice.

Below is a structured description of the management measures for each of the risks identified by the Client that may affect the activities during the tender procedures.

❖ **Risk management measures**

Considering the practice of recent years, the main risk when it comes to organizing and conducting public procurement, is the existence of complaints and the length of appeals procedures, which in many cases lead to delays in the indicative deadlines for starting the orders contracts, which lead us to the second risk mentioned above. In other words, the first risk is the basic precondition for the occurrence of the second risk. Risk analysis leads to the following conclusion on components:

**Probability:** almost certain.

**Impact:** significantly

**Classification:** high risk

In practice, there are no methods to ensure prevention of the Risk 1 occurrence. The Public Procurement Act and the administrative procedural rules are categorical in giving the possibility to appeal the decisions in public procurement, which in turn is necessary condition, to be provided that the principles of transparency, fairness and equality are respected. In this sense, it would be inconceivable to think about limiting the possibilities for appeals by the participants in a procedure.

However, the two mitigation proposals for the eventual occurrence of Risk 1 are:

A solid, reasoned and well-defended motivation of the Contracting Authority on entered complaint/s

The actions of the OE on the above proposal are described in step 12 above in the proposal as part of the commitments under the Terms of Reference and include:

- Timely assistance in case of appeal
- Review of the complaint/complaints
- Preparation of a proposal to justify the Contracting Authority
- Recommendations regarding timelines, procedural specifics and documentary layout of the justification

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- Oral and written communication with the Contracting Authority on complaints until the process is completed;

The second proposal to limit the impact of Risk 1 is:

application of the possibility stipulated in the Public Procurement Act from "Preliminary Execution of the Decision for awarding a Contractor"

The conditions for applying this option are clearly described in the Public Procurement Law and the OE will assist the Contracting Authority to prepare a reasoned request to the Commission for Protection of Competition to apply this option if requested by the Contracting Authority.

The expertise and experience of the Candidate and the team members responsible for this activity will be the key to the competent and effective implementation of risk mitigation activities of Risk 1. Given the fact that the OE has extensive experience and the necessary qualified experts, accompanied by good communication and coordination with the Client, we believe that there are conditions for timely management of the impact of Risk 1 and mitigation of its impact.

Risk 2, is in practice the possibility, due to an untimely start of a contract performance, to accumulate a delay that negatively affects the execution schedule of a project and threaten its completion within the deadlines set. That is exactly the case in the current case. Unfortunately, there are a number of factors that could trigger this risk. However, those relating to Stage 1 may be - complaints against decisions for selection of contractor, complications in negotiation, late signing of contracts due to administrative obstacles.

Although the existence of complaints actually represents Risk 1, it is still possible for indicative deadlines to be set in such a way as to provide for possible appeal for a maximum period of time, thereby limiting the possibility of realizing this risk element at the beginning. Given the possibility of predicting this risk and the possibility of preventive action against it, the conclusion on components is expressed as follows:

**Probability:** often.

**Impact:** Average.

**Classification:** medium risk.

Again, we point out that this section addresses the risk preconditions, that is associated only with Stage 1. There are other prerequisites that will be linked to this risk and addressed in the next sections of the technical proposal according to the nature of the activities.

Candidates' proposals to mitigate the impact of eventual realization of Risk 2 are:

- Existence of complaints against decisions to designate a contractor

Provision of additional time within the indicative deadlines to cover the time for appeal procedures.

In practice, the indicative deadlines will be defined and fixed during the implementation of the current contract, however, where possible and necessary action could be taken to change them in a way that does not lead to subsequent risks. As far as the situation would allow, the OE will promptly assist in the implementation of the above-mentioned measure.

application of the possibility stipulated in the Public Procurement Act from "Preliminary Execution of the Decision for Designation of Contractor"



This measure was also proposed under Risk 1, but given that the current premise overlaps with it, its use is redeemable. It should be borne in mind that, insofar as there are reasons to apply this possibility, its implementation has a significant positive impact on the timely start of public procurement contracts.

- Complications in conducting negotiations

Joint organization, preparation of comprehensive information and benchmarks for negotiation

Establishing a timely good organization, jointly between the OE and the Contracting Authority, for the negotiation of signing the contracts is important, regardless of whether there is a prerequisite for Risk 2. It determines the overall good organization, communication and synergy between the OE and the Contracting Authority with a view to effectively conducting the procedures under the Public Procurement Act and creating an appropriate basis for the execution of the contracts. In each case, the OE will help to organize, compile comprehensive information and benchmarks, and play the negotiations in advance.

- Delays in signing contracts due to administrative obstacles

The prerequisites for delays in the signing of the contracts for administrative reasons and respectively the start of work on them are bilateral - on the first hand, the reasons may be within the Contracting Authority, the other option is that the contractor is the generator of this delay or administrative difficulties for both parties. In practice, the likelihood of delays stemming from administrative burdens is extremely high. The existence of complex administrative procedures within administrations, deadlines for drafting and movement of documents, intra-administrative rules and processes that are more complex, the greater the administration is, are among the main reasons for the potential delays. Therefore, the two main suggestions for avoiding this risk are:

Preparation of a detailed plan /routemap of the steps, the persons responsible and the timeframe in which all the documentation necessary for the signing of the contracts must be completed

This plan/routemap will be prepared by the OE and provided to the Contracting Authority so that the document completion actions can be foreseen and the process can be easily traced from start to finish.

Communication and coordination between the OE and the Contracting Authority and ongoing monitoring and coordination of future contractors

Establishing reliable communication and coordination between the OE and the Contracting Authority is fundamental and is a definite tool to ensure compliance with administrative deadlines and procedures as well as timely ongoing control over contractors from the very beginning, so as to avoid any delay, both for the Contracting Authority and the contractors.

### 1.3. Logistics

The Owner's Engineer has offices in the territories of Sofia with suitable working conditions, which implies sufficient working space for all experts, modern technical equipment with the necessary hardware and software. The office has a convenient and communicative location to the head office of the Client with a planned meeting room, equipped with appropriate multimedia and wireless internet connection.

During the implementation of the Stage 1 activities, the expert "Project Management Service Manager", as well as the relevant team experts, will be located both in the OE office and at the

Client, given the need to review and evaluate the documentation and materials subject to public procurements and subject to an appropriate level of confidentiality. In case of taking certain materials outside, the same will be described in hand-delivery protocol, which also indicates the type of the copy (paper/electronic). If necessary, copies of documents will be made to preserve the originals, and costs are provided within the OE budget.

If the physical transportation of materials is necessary, the OE will provide a means of transport specifically designed for the purpose of the project to perform the transfer.

During the Stage 1 activities, various meetings, discussions, consultation and negotiations will take place. Except the negotiations on the two public procurement contracts that need to be carried out on the territory of the Contracting Authority, the remaining meetings could also take place in the OE's office. As the project takes place on the territory of two countries, the OE will provide resources, facilities, translation and recordings of relevant meetings if necessary to carry out conference meetings.

The Client will have continuous and easy contact with the OE by telephone or e-mail, in order to be able to respond in a timely manner to the need to organize a regular or urgent meeting, copying, transmission or transportation of documents and materials or preparation of a reference/statement.

The OE believes that the proposed resource and organization will be sufficient to cover the needs of the project and the requirements of the Client. The OE will be as flexible as possible to respond to the situation and, if necessary, to combine and adapt resources to ensure a seamless process of task execution.

#### *1.4. Organization of staff - division of functions and assignment of tasks*

In order to provide the highest quality services in the implementation of the activities during the tender procedures, our team will provide all necessary conditions for all activities to be carried out **within the timeframe and within the planned budget**. We guarantee that:

- the proposed organization of the team will be tailored to the specific needs of the Client and will create the necessary prerequisites for optimal results;
- maintaining ongoing communication and coordination with the Client will ensure a timely reaction by the OE in changing circumstances affecting the implementation of the activities;
- the proposed experts - members of the OE Team have many years of experience and qualification for qualitative and timely implementation of all activities, provided in the framework of the public procurement and fully meet the qualifications, skills and professional experience required in the Technical Terms;

#### **According to the documentation requirements we offer the following key team of experts:**

- Project manager
- Quality System Management Manager
- Health, Safety, Security and Environmental Manager
- Head of Project Management Services
- Head Engineering Design
- Head of Fieldwork supervision (Field Supervision)
- Head of QA/QC & Material inspection
- KE Independent Inspector 1
- KE Independent Inspector 2

The team of experts proposed by us has a high level of qualification and experience to achieve the objectives of the Terms of Reference, as well as an optimal combination of competencies designed to give a practical aspect of our work.

### **Additional experts**

In view of our expectation that bidding procedures will take place over time, we can also provide an additional team of non-key experts to assist key experts in delivering the services. Non-Key Experts will be selected according to the needs in accordance with the profiles and activities described in the Documentation for this Tender and the provided Technical proposal for Project implementation. All non-key experts will have higher education and relevant professional experience for the position for which they are offered.

All experts will be in legally regulated actual relationships with the OE. In this way the availability of all the experts proposed by the OE has been ensured. We undertake to take all possible measures of management and contract nature, as a result of which the members of the expert team:

- will be available to take up work exclusively on the current project for the entire duration of its implementation as required by their responsibilities;
- will be obliged to participate exclusively in the implementation of the project and will be available throughout the term - until it is accepted by the Contracting Authority;
- will be obliged to work in accordance with the OE bid for the qualitative performance of the subject matter of the order.

After the initial acquaintance with the outcome information and the progress of the activities, as after receiving the necessary data, based on the distribution of functions and responsibilities among the members of the team, a system of control over the current performance of the activities will be established guaranteeing the highest degree of successful realization of assigned tasks and functions. The control will be combined with immediate communication between the Contracting Authority's members and the OE team, aiming at maximizing the results of the tasks and their timely completion.

In order to cover the required in the tender documentation, we provide additional experts as follows:

#### **❖ Non-key experts**

- Technologist (linear gas pipelines)
- Electrical Engineer
- Engineer on SCADA/ATP
- Gas pipeline engineer
- Civil engineer
- Deputy Head of field supervision/ Resident Engineer (Bulgarian district)
- Resident Engineer (Greek District)
- Gaspipeline inspectors
- Independent inspector (Bulgarian district)
- Works Inspector
- Mechanical/Piping Inspector
- Electricity Inspector /SCADA /ATP
- Intersections Inspector (HDD)
- Inspector of "Geodesy"

- Inspector for water supply and sewerage
- Inspector for part of HVAC and Energy Efficiency
- Roadside Inspector
- Inspector of the health, safety, security and environment
- Inspector for tests and commissioning
- Expert "Land acquisition/right of way" (Greece)
- Expert "Land acquisition/right of way" (Bulgaria)
- Other experts, if necessary, according to the legislation in force and for more efficient and qualitative performance of the contract.

❖ **Support staff**

- Documentation Control Expert / Administrator

The main functions of each of the EC's team are given in Item 3 "Organization of the team", and in the table below, the distribution of the functions and tasks for the implementation of the activities during the tender procedures are shown:

Activities and tasks of Owner's Engineer (EC) during the tendering procedures	Responsible expert from the OE team
Understanding the tender documentation - assignment, specifications of the materials, breakdown of activities and prices, procedure and evaluation criteria	Project manager; Project management services manager;
Understanding the technical documentation of the Project on which the technical part of the tender documentation is based - the complete engineering and design documentation (FEED) for Greece and the technical design for Bulgaria	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection; Non-Key Experts: - Technologist (linear gas pipelines) - Electrical engineer - Engineer on SKADA /ATP part - Gas pipeline engineer - Civil Engineer; - Others if necessary;
Understanding the tender documentation and technical documentation of the Project, taking into account that the technical design for the Bulgarian territory has been approved by MRDPW for the purposes of obtaining a building permit and is not subject to change	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection; Non-Key Experts: - Technologist (linear gas pipelines) - Electrical engineer - Engineer on SKADA /ATP part - Gas pipeline engineer - Civil Engineer; - Others if necessary;

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During the bidding period - review and answer questions and requests for clarifications from bidders	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts when needed
Assessment of technical and commercial EPC based on the criteria included in the approved evaluation procedure and providing the Contracting Authority with a detailed assessment report	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection;
Assisting the Client to formulate queries to bidders and answer questions from bidders during the bid evaluation phase by providing draft and / or written submissions	Project management services manager;
Preparation and submission of recommendations to the Contracting Authority for the selection of the Contractor for the EPC and the Line Pipe Supplier, as such recommendations are not mandatory for the Contracting Authority	Project management services manager;
Assistance to the Contracting Authority during the negotiations, if any	Project manager; Project management services manager;
Assistance to the Contracting Authority in case of appeal against decisions of the Contracting Authority	Project manager; Project management services manager;

## 2. Services during the Project Implementation Stage - Stage 2

### 2.1. Project Management Services

Project management services include performing control functions on behalf of the Client, coordination, expert support, interaction with all concerned parties, including, but not limited to, the parties involved in the construction process. Project management services will be provided to the Contracting Authority to ensure that the project's objectives are met in terms of time, cost, quality, health, safety, environment and ecological requirements.

As an Owner's Engineer we will act as a representative of the Contracting Authority to third parties, including state authorities and institutions, local governing bodies, other natural and legal persons. Such representation will be subject to the explicit prior approval of the Contracting Authority.

Project management services include:

#### ❖ Structuring Services for the Project

Project structuring is the first step in the PEVA cycle (planning-execution-verification-action), which is the basis of the project implementation approach. We pay great attention at this stage, as proper planning and structuring is a prerequisite for the successful implementation and constant improvement of the consultancy services we offer to implement this procurement. Structuring is a set of events to establish a maximum detailed picture of the circumstances, facts and prerequisites for successful project implementation. We take into account both the characteristics of our work organization - the qualifications, the experience and the advantages, as well as the specific characteristics and main characteristics of the Client, his functions, specific features, responsibilities and needs, such as the Infrastructure Manager responsible for the implementation of the project. In addition to the Client's requirements for the implementation of this project and the set requirements of the assignment, we have taken into account and identified the needs and

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expectations of the parties involved, which is key to us so that we can offer the relevant and highest level consulting services to meet expectations.

According to the information provided in the Tender Documents of the Contracting Authority under this order:

- The project envisages the design, construction, commissioning and operation of a gas pipeline (IGB), which will directly connect the national gas transmission systems of the Republic of Greece and the Republic of Bulgaria. The entry point of the IGB pipeline is in the region of town of Komotini (Greece) and the exit point is in the area of the town of Stara Zagora (Bulgaria). The IGB will also have an interconnection point with the Trans-Adriatic Pipeline. The outer diameter of the IGB pipeline will be DN 800 with a total length of about 182 km.
- The Contracting Authority intends to organize procedures for the implementation of the project:
  - Line Pipe Supplier - with range of linear pipes supply and
  - Contractor of EPC (engineering, supply, construction) - with scope of engineering, supply, construction, training and commissioning of the pipeline.

Another fact that is taken into account, is that the services defined by the Contracting Authority are carried out in coordination with all the parties involved in the construction process as Designer (Performing Designer's Supervision under Article 162 of the Spatial Development Act) and the Consultant (under Article 166 of the SDA, whose functions shall be carried out by the person performing the Construction Supervision under Article 168 of the SDA) and a Natural Person exercising construction supervision over the Structural part.

The first task of structuring the project will be:

➤ **Work Breakdown Structure WBS**

When preparing the Work Breakdown Structure, the separate phases of the detailed design will be considered, the construction process, personnel training and commissioning. The structure of the work breakdown is oriented towards the final results hierarchical decomposition of the work, to be done to achieve the project objectives and to produce the expected results, as each lower level of the structure giving a more detailed description of the project work. The decomposition will divide the planned project results into smaller, more manageable components, while the work and the planned results to be defined as "work packages". "Work Package" is the lowest level in the WBS and is the point at which the cost of an activity and its duration can be evaluated and managed. The decomposition of all project work covers the following activities:

- Identify and analyze the results and related work;
- Structuring and organizing "work packages"
- Decomposing higher levels of WBS at lower levels containing detailed components;
- Develop identification codes and bind them to WBS components
- Check that the decomposition of the work is sufficient.

Once work is decomposed to more detailed levels, planning, management and control is improved

➤ **Full Breakdown of Costs (Cost Breakdown)**

The determination of a full cost breakdown will be based on collection of estimated costs of individual activities from the Contracts of the ECP Contractor and other suppliers of materials and services and work packages from the WBS, and an agreed basic cost framework will be established. The CB will serve the Client with reference to assets that will be built and will facilitate strict budget control.

### ➤ **Project Implementation Plan (PIP)**

As a starting document, a Project Implementation Plan will be created, which is an important part of our approach to the successful implementation of such a complex project. It clearly reflects the objectives, the specific tasks, the resources, the schedule, the organizational scheme, the limitations, the assumptions and the risks and the ways of their management. By clever balancing on our part of the competing project constraints such as scope, quality, timing, budget, resources, risks, etc., the implementation plan will be designed to maintain their balance and achieve the project goals.

The project implementation plan will include, in addition to the organization, the roles and responsibilities of the team, as well as certain procedures (including detailed design review), frequency of meetings, communication rules, quality and reporting for completing the Services. The project implementation plan is a "live" document that will be updated and refined during project implementation, with each revision being provided to the Contracting Authority and all interested parties.

The plans and procedures, part of the Project Implementation Plan, which are subject to the approval of the Contracting Authority are:

- Communication within the Project;
- Exchange of documentation (including final technical documentation);
- Terms and costs (eg, administration of contracts, supervision of deliveries);
- Risk management
- Engineering (eg. view of detailed design, field design);
- Supervision of construction;
- Identity of interested parties - participation, role, responsibilities, impact on the project;
- Permits;
- Monitoring and reporting on progress;
- Quality (e.g. issuing of inconsistency documents, testing and checking, checklist);
- HSSE (Health, Safety, Security and Environment), except for the obligations of the company performing the functions of Construction Supervision under Art. 168, para. 1, item 4 of the SDA for Health and Safety Requirements for the Bulgarian Territory, as well as the implementation of the plans for environmental protection in accordance with the prescriptions in the EIA permits in the two countries - Greece and Bulgaria.

### ❖ **Health, Safety, Security and Environment services**

As described above, procedures will be developed as part of the planning activities in relation to activities set out in the Owner's Engineer's contract. The elaboration of the procedures for HSSE for the Bulgarian section will be taken based on the approved investment designs in all parts.

Together with the elaboration of the HSSE Procedures, a safety risk analysis will be carried out, which will aim at ensuring compliance with the obligations of the Contracting Authority to comply with the HSSE requirements, including those imposed by local legislation (for the Bulgarian territory the Law on Health and Safety at Work and Ordinance No 5 of 11 May 1999 on the order, manner and periodicity of carrying out a risk assessment).

Regular audits and reviews of HSSE procedures and documentation will be provided to assure the Contracting Authority that the risks of breaching its legal obligations and commitments are minimized and that the risks of damage/injury are mitigated accordingly.

Regarding the environment, according to the information in the tender documents, the project has received positive EIA decisions (environmental impact assessment) by the competent authorities on Bulgarian and Greek territory. In this regard, the implementation of the measures identified in the relevant assessments of the design and construction stages will be monitored to ensure the highest environmental protection.

Besides the elaboration of the HSSE procedures, the following will be carried out:

- Review of the HSSE Guidelines and Plans of the EPC Contractor and the Line Pipe Supplier;
- Review the HSSE procedures of the EPC Contractor and the Line Pipe Supplier. Verification that the proposed procedures meet the required standards as defined by the Contracting Authority's requirements;
- Monitoring whether the requirements of the guidelines, plans and procedures for HSSE are met by the EPC Contractor and the Line Pipe Supplier;
- Immediate notification of any inconsistencies to be detected;
- Requirement for emergency safety measures to be taken by the EPC Contractor and/or the Line Pipe Supplier when required and established;
- Monitoring compliance with studies provided to authorities, including, without limitation, environmental impact studies on both territories - in Bulgaria and Greece - and a safety plan;
- Verification and signature on behalf of the Contracting Authority of any HSSE document as required by applicable law and
- Assistance to the Contracting Authority when monitoring the EPC Contractor to comply with environmental requirements.

#### ❖ **Quality management services**

According to the requirements of the Contracting Authority, the Owner's Engineer will assume auxiliary and advisory functions in relation to the activities and decisions of the Contracting Authority, will direct and coordinate the terms of supply and construction on behalf of the Contracting Authority. Coordination of the construction process to the commissioning of the construction site and during commissioning, including control of the quantities, quality and compliance of the construction and installation activities carried out under the Construction Contract.

The quality management procedures will be based on a project quality management plan, which will be developed by the OE, which will extend the IGB quality management system to a construction phase.

The quality management plan will help ensure the quality of the project, the quality risks, the quality checkpoints, the verification criteria, the checklists, the legal referent documents, etc. will be documented.

The Quality Management Plan, including the various applications and forms, will be web-based documents uploaded to a server, as well as paper documents where applicable. Updating the Plan will be communicated to all parties that use the server, only the latest versions of the documents and forms will be maintained, revisions are usually not reported.

The Owner's Engineer has implemented an ISO 9001 - quality management system covering technical, administrative, financial, organizational and operational issues in order to ensure a reliable and permanently stated quality level in all measures, procedures and results as declared by the Managing Authority of the Joint Venture. Quality management systems are subject to continuous auditing by independent accredited auditors confirming the compliance of the quality management system with the requirements of the ISO 9001 quality standard.



As noted above, the OE will develop a quality plan that will cover the requirements of the tender documentation, plan the necessary resources and staff to ensure the full implementation of the quality system requirements.

With the validation of the Quality Management Plan and the quality procedures, the formal frameworks for the operation of the quality system will be established. All their prescriptions and requirements will be actively applied and implemented by all members of the OE team.

The Owner's Engineer will examine and prepare statements on the design documentation (technical reports, drawings, calculations, methodology, reports, etc.) based on the document verification procedure to be introduced. The OE will prepare approval reports with the appropriate approval indices, for example:

- Status A - no comments
- Status K - with comments
- Status R - rejected
- Status I - for information only

As part of the Project Management Plan and in order to ensure transparent communication in the initial phase of the project, the Consultant will develop a web-based document flow management system that will allow document control and archiving and will be of decisive importance for the success of the project. All documents will be uploaded to a central web based server where, depending on given access rights, each registered user can view, download, and EPCt the documents. The document management system has the following capabilities:

- Access rights ensure that certain documents can not be reached by unauthorized users;
- All project documentation, letters, minutes of meetings, reports are prepared centrally. The expert/country responsible for the preparation of the document will have the responsibility to upload the file to a predefined folder (e.g. the designers upload all the drawings prepared by them, the supervisors upload the results of all tests, certificates, etc.);
- Uploading, downloading and reviewing of documents can be done virtually anywhere;
- Significant savings are made (human and time) for the implementation of the activities;
- The flow of the documentation is controlled;
- Allows status control and review of drawings and reports;
- DVD's with all files will be prepared on electronic mEPCa at the end of the project, so structured and complete project information can be distributed on demand;
- Documents, specific texts, filenames, etc. can be searched through the search engine.
- Uncontrolled distribution of documents by hand, e-mail, letter or courier is not allowed;

Immediately after the selection of a specific contractor for the EPC/Pipeline supply, all documents produced as a result of the respective contracts and their updates will be uploaded to the management system in clear organized structure.

The following registers will be kept up to date on the central web server of the project:

- Invoice Register
- Contracts Register
- Risk Register
- Register of technical issues

- Document control records and final drawings
- Audit Register to Track Inconsistencies and Corrective Actions
- Register of certificates and reports
- Register of approved personnel performing inspections

#### ❖ **Commercial management services**

Commercial management services include assisting the Client in verifying the progress and billing process by the Contractors of EPC and Pipeline Supply.

The most common commercial management activities are:

- *Check the progress certificates for the activities and the corresponding payment certificates*

The Owner's Engineer will review the Progress/Payment Certificates on EPC Contract/Pipeline Suppliers, an on-the-spot check to verify the actual work done. Each Payment Certificate will be prepared in accordance with a template agreed in advance with the Contracting Authority and will contain:

- A detailed report approved by the OE from the relevant Contractor for EPC/ Pipeline Supply;
- A detailed list of fully executed activities approved for payment as shown in the relevant price breakdown;
- An accompanying statement from the OE on the progress of the contract (in accordance with the work program and the timetable) and the financial status;
- Tax invoice in original, issued by the respective Contractor.

When verifying the certificates, the OE will require additional information from the contractors of EPC/ Pipeline supply (if necessary) or will certify partial payment of some types of activities.

The Owner's Engineer will prepare the relevant Payment Instrument in due time, according to the relevant contract, from the date of receipt of the correct documents by the contractors of EPC/ Pipeline supply. The OE will check the correct composition and the authenticity of the issued invoice / original plus a copy/ based on the payment order.

After receiving a correct invoice, the OE will send to the Contracting Authority the original payment document, original and copy of the invoice, and a copy of the payment request, in accordance with the procedures in the contracts of EPC/Pipeline Supply.

Throughout the project implementation duration, the OE will notify the Client of all actions, decisions or approvals it deems necessary and expEPCent to speed up project implementation and maintain control of costs.

In addition to the above, for the Bulgarian section, the OE will sign on behalf of the Client the acts under Ordinance No. 3 from 31 July 2003. For composing acts and protocols during construction works.

- *Technically support the Client in the evaluation and settlement of requests for contractual changes*

Amendments in EPC/Pipeline Supply contracts may be made by way of an additional agreement to the contract and may be exceptionally granted:

- where unforeseen circumstances require:
  - change in terms of the contract, or

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- partial replacement of activities from the subject of the contract where this is in the interest of the Contracting Authority and does not lead to an increase in the value of the contract; or
- the whole or partial replacement of materials (goods) included in the subject of the contract, including their elements, components or parts, where this is in the interest of the Contracting Authority, does not lead to an increase in the value of the contract and the replacement materials comply to the technical specifications, as having technical advantages and/or better functional characteristics than replaced materials (goods), or;
- reducing the total value of the contract in the interest of the Contracting Authority due to a reduction in the agreed prices or contracted quantities or dropping out of activities, or;
- where a price increase is necessary due to the acceptance of a normative act - to the rate resulting from its direct and immediate effect, or
- in the event of circumstances that could not have been foreseen at the time of conclusion of the contract and as a result of which the agreement affects the legitimate interests of one of the parties.

In the case of amendments, the OE will make their assessment of the technical, financial and legal aspects of the change, including an assessment of each party's due amounts under the separate EPC/ Line Pipe Supply, and then provide the Client with recommendations on amendments.

- *Informing the Contracting Authority if activities not covered by the construction contract are carried out*

Through the team located at the construction site, the OE performs day-to-day control of construction works and keeps records in the construction site registers. This ensures that activities that are subject to contractual changes are not performed before the explicit written approval of the Contracting Authority as specified in the construction contract.

For the Bulgarian section there will be an Order Book for the site, which will be completed and maintained according to the provisions of the Spatial Development Act. Entries in the Order Book under SDA shall be made only by the persons authorized under the SDA and according to the provisions of the SDA.

- *Technical Assistance to the Contracting Authority in all aspects of its administrative activities*

The technical assistance of the Contracting Authority in connection with its administrative activities will include in general:

- Monitoring the status and progress of separate contracts and taking action to comply with the project implementation timetables;
- Monitoring the quality of the work;
- Monitoring the implementation of safety, health and environmental protection measures at work;
- Monitoring the provision and supply of materials, equipment and technological equipment;
- Monitoring the mobilization of personnel, mechanization and other resources;
- Reviewing the updates of the detailed work program and the provided cash flows of the contractors;
- Monitoring work progress;
- The role of coordinator between the parties involved in the execution of the construction;
- Control of agreed deadlines in the EPC and Line Pipe Supply contracts;
- Monitoring the activities of the contractors of EPC and Pipeline Supply to fulfill all obligations in accordance with the Contractual Terms;

- Assisting the Client to prepare the relevant documents for imposing penalties under the contractual terms;
- Advising the Client of any problems or disputes arising from the EPC/Pipeline Supply contracts;
- Providing assistance to the Contracting Authority in the administration of the advance payment bonds, performance bond and retained amounts, if applicable, and all other guarantees in the construction and engineering contracts;
- Inspecting insurance policies, indemnity policies, etc., provided by contractors in accordance with the provisions of the EPC/Pipeline Supply contracts
- Issuing guidelines and proposals that are necessary and lawful to manage the implementation process;
- When necessary, evaluate the changes proposed by the Contracting Authority or contractors for the EPC;
- Creation and maintenance, with access for the Contracting Authority, of a contract register.

#### ❖ **Monitoring and reporting of progress**

The Owner's Engineer will track progress, both physical and financial, under the contracts of EPC/ Pipeline supply. In the course of tracking progress, the OE will promptly inform the Client of possible problems that may affect the achievement of the project objectives, as well as propose specific measures to overcome the delays.

With regard to reporting to the Contracting Authority, the OE will provide a detailed monthly report containing a review of the actual state regarding the Project objectives, detailed information on Project Contracts, progress of work and proposals for measures to reduce adverse impacts (if necessary) and others, in relation to the Contractor of EPC, Line Pipeline Supplier and other Suppliers who have a contractual relationship with the ICGB for the Project, as well as the progress in the contract of the OE with a forecast report for the next 30 days outlining the main items with respect to the next reporting period.

For the purposes of monitoring and reporting progress on EPC/ Pipeline supply Contracts, the OE will set up a progress measurement system based on the WBS described above (work breakdown structure) and CB (costs breakdown) as well as project schedules (see "Planning and Schedules" below).

The main monitoring and reporting activities of the project are:

- Review the detailed plans of EPC/ Pipeline supply Contractors for the implementation of activities and/or services and identify and assess key risks;
- Monitoring the timely performance of the activities and/or services and supplies of equipment according to the applicable timetable and, if necessary, advising and proposing the necessary corrective actions to compensate for any delay that may arise during the performance of the Contracts with Suppliers;
- Measuring and reporting progress against the agreed breakdown of activities and/or services and delivery of equipment (e.g., pipe line) under the Contracts with Suppliers;
- Documenting and reporting the completion of separate elements of the activities and the delivery of the materials, according to an agreed breakdown;
- Reporting once a month all the results of the supervision activities of the Contracting Authority;
- Comment on the monthly progress reports prepared by the EPC/ Pipeline supply Contractors;
- Weekly reporting on the progress of activities and/or services and delivery of equipment under contracts with Suppliers and
- Maintenance of detailed and accurate records of supervision activities.

### ❖ Interaction management

The manner in which the Managing/Coordination of the interactions between the contractors in the separate contracts and other parties of the project, will be carried out, defining the following stages:

- Define the type of interaction;
- Define the interacting parties;
- Determining the liabilities and responsibilities of the interacting parties, in accordance with the contracts of all parties and the legal requirements;
- Coordination activities;

The Owner's Engineer takes into account the specificity and complexity of the project and assesses the importance of coordination activities between different contractors. For this reason, the OE will create an *Interaction Management Plan*, whose main function is to define a relationship between design and construction teams and the interacting parties. The OE will assess the progress of the coordinating activity with its interacting parties by establishing communication lines according to the scheme below and will assist in the regular exchange and updating of information between the interacting parties. In the process of contractual relations the exchange of information between the parties can be done by receiving reports on the progress of the activities and using the reporting documents for design and programming data. The reporting documents will be issued by the Contractors for the implementation of the Project via OE to the interacting parties and will take into account the current status of their activities and the data necessary for the project's operation.

OE will monitor progress to minimize the impact of potential delays.

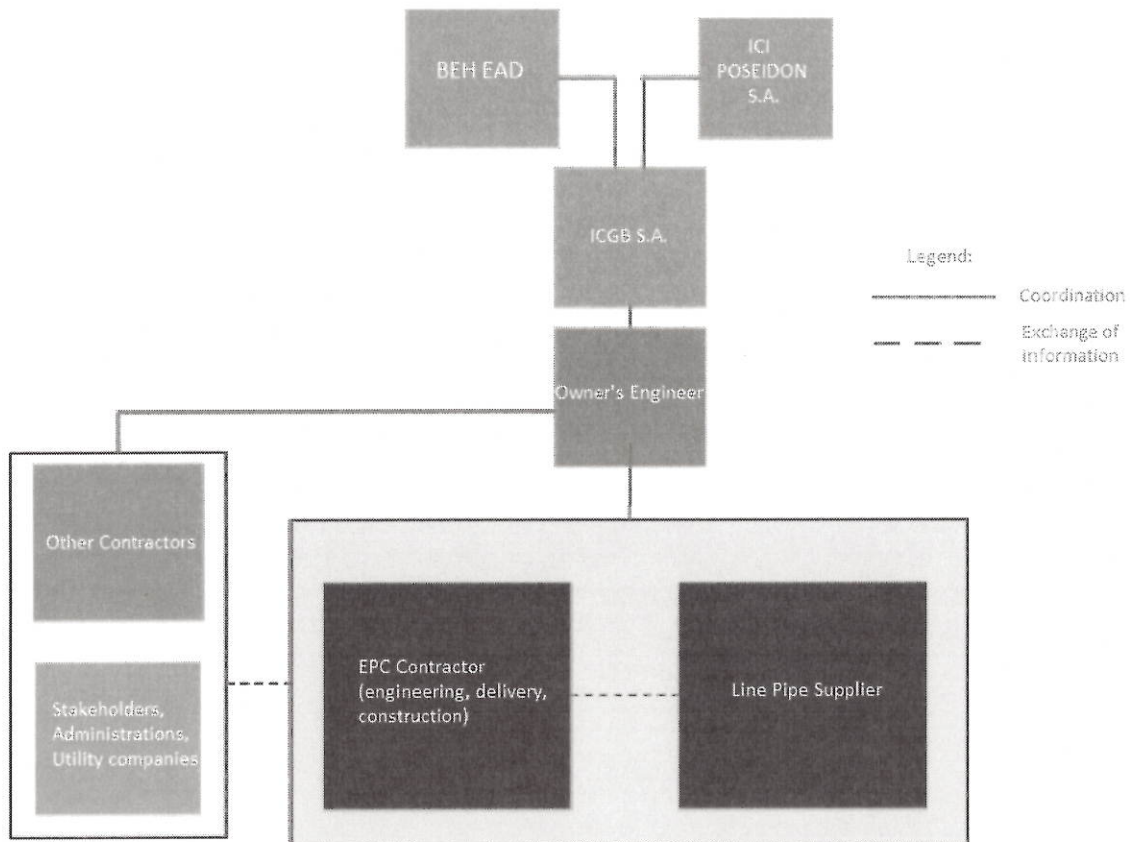


Figure 1: Organization of the interaction

Handwritten signature or initials in blue ink.

In order to achieve good coordination between contractors and involved parties, OE will provide a way for a timely and continuous exchange of information between project participants, such as:

- Create a project server (see above);
- Organize and conduct regular coordination meetings to manage interactions between individual contractors and / or involved parties;
- Organize, if necessary, work meetings with and between contractors.

#### ❖ **Planning and preparation of schedules**

In the process of project management, based on WBS (breakdown of activities), the following timetables will be developed:

- A detailed overview schedule to Level 3 that will give an overview of the critical path of the project, will include integrated timetables or a summary of the Level 4 schedules activities of of EPC/ Pipeline supply, for the purpose of reporting the status of the project by the senior management.
- Master Management Schedule to Level 4 - This is the main schedule that will be developed by the Critical Traffic Method (CPM) at the work level, showing the activities that need to be performed by the project human resource. Dates generated by Schedule Activities are the expected start and finish of the work needed to complete the project. The Level 4 schedule may be for the entire project or part of the project, depending on the construction and supply contracts and the complexity of the project work. A critical factor is the maintenance of any "Level 4" schedule of a reasonable size that can be easily managed, updated, validated, and so on. Level 4 schedules will be for Top Position Jobs or Discrete Processes such as "Schedule for Design," "Schedule for orders" an /or "Schedule for commisioning".

The purpose of a Master Management Schedule is to control the Project and measure in detail the progress of the Project and compare it to the main stages of the contractual timetable.

#### ❖ **Cost estimation, comparison and monitoring**

Reporting on financial progress under the EPC/Pipeline Supply Contracts or any other third party related to the Project, will be carried out by OE, monitoring the cash flows in relation to the planned contract activities, maintaining and updating reports on the payments and costs under individual contracts. In the event of a change in the cost plans of Contractors of EPC/Pipeline Supply or any other third party related to the Project, OE will promptly notify the Client of the change that has occurred.

The reporting of funds will be carried out by monitoring:

- Distribution of resources at a given time

The allocation of funds at a given time will be presented in tabular form, supporting information on: Payment Acts (PA) by the contractors, the request period and payment of each payment request, the value of the works performed under the corresponding payment requests, refund of an advance payment (in value and percentages), if applicable, retained amounts, total value of payment request (invoice). As a result, the merger of the financial data on the execution of the construction and engineering contracts, will be also taken into account the percentage of financial execution of each of the contracts

AP №	Period	Amount of the executed works acc. AP /BGN/	VAT of AP /BGN/	Reimbursement of advance payment		Retained money /BGN/	Total amount of AP acc. the invoice /BGN/	Financial performance / % /
				/BGN/	%			
	Advance payment							
01								
02								
<b>Total:</b>								

Figure 2: Distribution of funds

The financial status of each contract, including actual payments within a given period, will be compared to the initial cash flow forecast. By the cost assessment made, it will be possible to indicate the problems that have arisen and, accordingly, OE will make suggestions for overcoming them.

- Estimated distribution of funds until the end of the relevant contract.

In the course of fulfilling its obligations, OE will prepare and maintain a timetable showing the initial forecast of cumulative cash flows compared to actual payments.

The figure below shows an example of a diagram of the expected distribution of funds, with an advance payment shown in blue, the monthly payment amounts displayed in red, and in green the cumulative amounts from the start of the relevant contract.

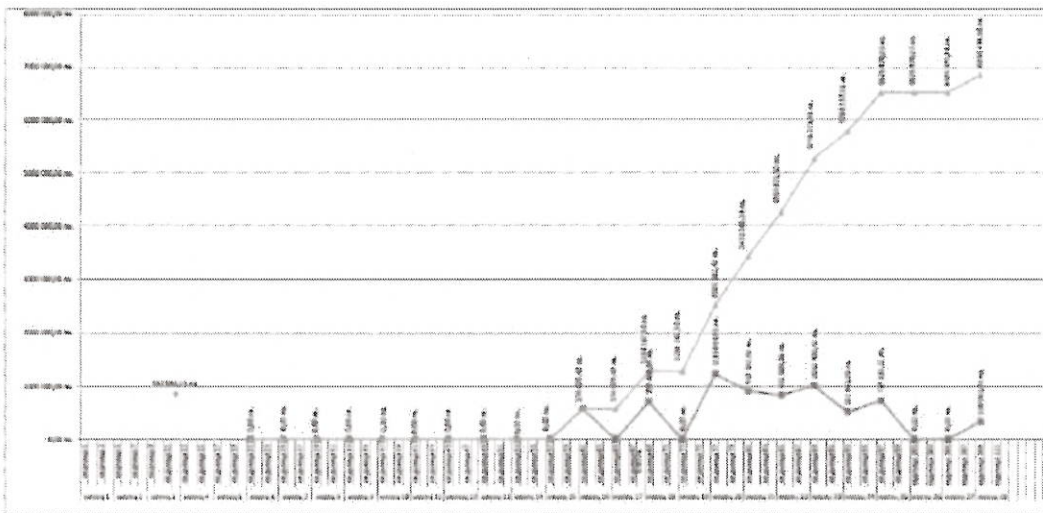


Figure 3: Distribution of funds

OE will identify, define and standardize the basic administrative requirements for recording, tracking, and reporting accurate cost data. OE will assist the Client by performing all the tasks necessary to achieve a proven budget and cost control. In this respect, OE performs the following tasks:

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- Designation of costs (preparation of structure with breakdown of costs based on the structure of the breakdown of activities);
- Cost accounting;
- Analysis of acquired value;
- Control of contractual changes or claims;

#### ❖ **Management of communication and document control**

As part of the Project Management Plan and in order to ensure transparent communication, in the initial phase of the project, OE will develop a web-based document management system (DMS) that will allow for control of the movement and archiving of documents related to the implementation of all contracts, within the scope of the project, as well as the contract of OE. Given the amount of work, complexity, timing of implementation and broad territorial scope of the project, the use of such a web-based system for rapid tracking and document storage will be crucial to the success of the project. All documents will be uploaded to a central web based server where, depending on given access rights, each registered user can view, download, and EPCt the documents uploaded to the platform. Many participants are involved in the project and will be located in different regions. These include: Client, Owner's Engineer under the current order, and Contractors of EPC and Pipe Supply. All of them can communicate through a DMS.

A very important point is the distribution of responsibilities and constant control over the proper use of the system by all users. A good DMS provides a user interface in different languages. The software offered by the Consultant can also be used in Bulgarian. Language can be chosen by each individual user. As soon as a particular contractor has been selected, the Consultant will start uploading all the documents produced as a result of the contract as well as their updates, to the DMS in a clearly organized structure. For example: contract, contract warranties, assignments, drawings, schedules, payments, etc.

- Procedures for preparing correspondence

Correspondence is any form of communication irrespective of the implementation method - mailings, emails, faxes, oral presentations or notes.

- All documentation - correspondence, reports, statements, summaries and protocols relating to the Owner's Engineer 's contract must be maintained in an easily identifiable form, quoting the name of the Project and / or acronym;
- All emails sent during the execution of the contract must contain the Project acronym in the "about" field;
- All official documentation must contain an entry/exit number, subject of the contract, number, date and subject, for easier control and identification;
- All correspondence on the Project should be limited to one topic, as well as an indication of belonging to a particular folder;
- All official documentation (Letters, Protocols for the submission of documentation relating to Project Contracts to the Client must be in paper form) In parallel, the letters can be sent to the OE by electronic means - by e-mail with attached scanned copy of the document and uploaded to the electronic data server;
- The name of the correspondence file must follow the document naming instruction (shown below);
- All official documentation must be signed by the team leader or his authorized representative;
- All official and / or contract correspondence will be clearly written in Bulgarian and English.



- Classification of documentation

Documents are classified into reports (specialized and periodical), statements, summaries, minutes of meetings/confereces, technical documentation, correspondence and folders.

- Rules for documents titles

As part of quality management, OE will develop rules for naming the documents. The "naming rules" describe the principles of naming the entire documentation (correspondence, reports, opinions, etc.). The purpose is to provide a way to identify correspondence, reports, minutes and memos from meetings, etc., giving a unique code to each document. This code contains information about the author, type of document, date and other accompanying information such as input/output. No. and topic.

It is very important to observe the naming rules. This improves performance (avoiding misunderstandings and extra work) and allows easy and fast archiving and/or document retrieval on the server.

For quicker detection of documents, meeting records, and correspondence, the subject area of the document, such as a serial number of a meeting or a specific topic, an indication of the designer part, section or the facility to which the document refers.

Any document issued by a Project Participant that is intended for sharing with other participants must be numbered according to the naming rules. Incorrect or inaccurate numbering can lead to confusion and therefore inefficiency.

Contractors must comply with the document naming rules as far as their contract products are uploaded to the server.

The technical documentation (drawings) will not follow these rules but will have their own.

An example naming procedure is shown in the diagram below. An updated version of the naming rules will be attached to the "Quality Assurance Systems" section.

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Contr.No	Date	Document Type	Revision	Free text (max. 50 symbols)	Extension
00* 01 02 03 04 99**	YYMMDD	Meeting MM00 - Inception meeting MM10 - Regular meetings Client/ Consult/ Contractor MM11 - Technical expert council MM12 - Exceptional meeting with the Client MM13 - Exceptional Coordination meeting	00 01 02 ... ...	Free text Obligatory: numbering Free text Free text Free text	.pdf .doc .docx .msg .mpp .zip .xls ...
		Correspondence CLT - Letter, e-mail, fax CTR - Taking-over protocol		Obligatory: editor, numbering Free text	
		Reports RRI - Inception report RPR - Monthly report CSR - On-site inspection report FIR - Final report RST - Statement INR - Intermediate report RES - Resume	00 01 02 ... ...	Free text Obligatory: numbering Free text Free text Free text Obligatory: numbering Free text	
		Other documents APP - Application APR - Approval CBA - Cost-benefit analysis CFI - Cash flows, Payment programme COP - Cost optimisation programme CTR - Control list DAT - Data DSL - Documents status list DIA - Diagram GUA - Guarantee HSP - Health&Safety plan INS - Instruction INV - Invoice MAN - Manual PRE - Presentation QAP - Quality Assurance Plan REQ - Requirement (ex. from authorities) RMP - Risk Management Plan SCH - Schedule SKE - Sketch SPC - Specification STR - Strategy TOR - Terms of Reference TSC - Time schedule VAR - Various	00 01 02 ... ...	Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Obligatory: numbering Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text Free text	

Figure 4: Example of naming rules

- Procedures for preparing, submitting and approving documentation

The documents related to quality management are defined by the implemented systems in the structure of the OE according to the ISO 9001 model. The documents are grouped by:

- their purpose and content;
- their subordination to the hierarchical structure of the management system;

According to its purpose and content, the documents used are divided into five groups:

- Documents from the quality management system (QMS);
- Technical documents - design documentation, etc.;
- Commercial and economic documents - contracts, etc.;
- Administrative documents - powers of attorney, certificates, etc.;
- Documents of external origin - normative documents (standards, national and international laws, ordinances and regulations to them, agreements), guides, catalogs, etc.

A procedure has been adopted for the current order by OE, which defines the rules and responsibilities for the distribution and control of documents, mail and archiving. All participants in

the team will be familiar with the system for recording, archiving, copying and distributing all correspondence in accordance with the quality management system mentioned above.

An archive for copies of all documentation will be created at the Consultant's office. The documents are registered and archived in the following more important registers respectively:

- Incoming correspondence register (Inbox Daybook);
- Outgoing correspondence register (Outbox Daybook);
- Register of orders;
- Register of reports;
- Register for the technical archive;

All documents received or prepared in an electronic version will be stored on the Project Server. For this purpose a system for privileged access to the site data has been created.

- Managing information in electronic format

All written correspondence will be prepared electronically, with handing over of the letters and documents itself. In the case of the correspondence transmission on paper, an electronic version (or scanned copy) must also be provided and stored on the server.

All documents drawn up or received by the OE will also be recorded in electronic format. Every time an OE representative receives a letter or a hard copy, it must circulate it electronically to familiarize other experts with its content and to submit it to the server. Electronic communication requires very good discipline on the part of all participants in the project.

- Project documentation and communication platform processing system

The communication platform will be created by OE. All project participants will be invited to join and use the electronic communications platform as described below:

- Organizational structure of files

All regular reports, correspondence and accompanying documents are kept by the party that prepares them in a Document Management System. A basic principle is to avoid double storage. The organization must be respected and not changed. No unnecessary subfolders should be added.

Below is a system for organizing the information. OE will use the control structure of the entire electronic documentation. However, the minimum requirement is that OE and Contractors of EPC and Pipeline Supply upload all contract products (reports, minutes, schedules, etc.) to the server.

This measure should control document turnover and significantly reduce the administrative burden for all parties. All electronic data should be organized by the contractors themselves.

- Access control

Control over access to certain documents, permissions for uploading/downloading documents, read-only reading, etc. are exemplified in the Scheme below:

Handwritten initials: *AN NG*

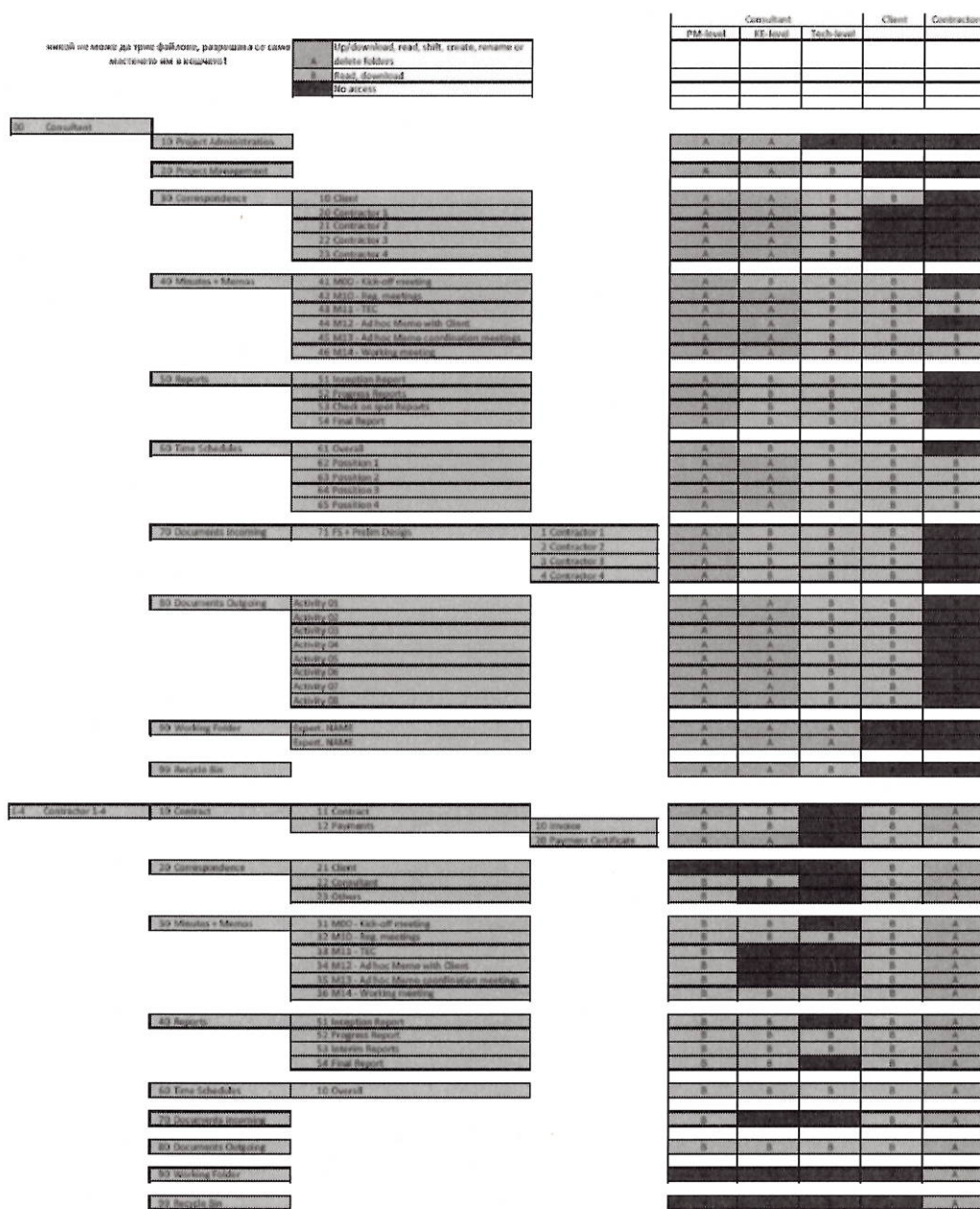


Figure 5: Example of the organizational structure of the CMS.

❖ Risk Management of the Project

Risk management services will be launched in the initial phase of the project, with an initial risk management seminar being held during the bidding phase to identify the risks and opportunities of the Project.

During project implementation, OE will organize and will be responsible for the moderation of risk management seminars. In addition, OE will be involved in developing options and specifying the risk mitigation measures to be applied during the construction phase.

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The main task of risk management is to draw up a risk management plan, which includes risk identification and risk mapping, updating this registry during the project implementation, as well as risk mitigation measures, ongoing monitoring and control.

#### ❖ **Changes management**

OE will manage the Change Management process by assessing the changes/contractual changes proposed by the Contractor of EPC or other Supplier, taking into account local legislation and a contractual framework and defining, monitoring and controlling the stages as defined in the Change Management process.

Modifications/ changes can generally occur due to:

- Request from the Client;
- Suggestions from the Contractor of EPC or any other Supplier;
- Statements of local and central administrations, specialized control bodies and operating companies;
- Coordination with other collaborative projects;
- Unforeseen circumstances / Force Majeure / Third Party Impacts;
- Others.

Change/modification of the investment design, regardless of the project phase, can only be done by the Designer.

The change control process includes the following changes management activities (revisions) depending on the stage of the project:

- Identifying the need for project changes;

Identifying the need for contract modifications will be made by reviewing the officially submitted documents requiring change (requests for change);

- Reporting of restrictions (legislative and contractual)
- Review and analyze the request for change;

When analyzing the request for change, the necessity and acceptability of the changes requested, the impact of the changes on the quality of the project as a whole, the costs associated with the changes are assessed. To make such an analysis, we will look at the following contractual documents:

- The Technical Proposal of the Contractor, including the attached schedule of activities;
- The work program of the respective Contractor;
- Force majeure certificate (if applicable);
- Reference, proving the occurrence of extremely unfavorable climatic conditions (if applicable);
- Proposal of the relevant Contractor affected by the occurred circumstance for the mitigation/elimination of the consequences thereof;
- Statement (requirement) by an interested party;
- Other documents applicable to the particular case.

The analysis of the change request and the statement on the necessity and admissibility of the proposed changes, their impact on the quality and the costs related to the changes, shall be made in accordance with the change management process approved by the Contracting Authority.

Any documented request for change must be approved or rejected by the Contracting Authority.

- Documentation

Documenting the entire process of project changing, is documented in accordance with the procedure described above in the "Communication and Document Control Management" procedure.

- *Changes during construction*

For the Bulgarian section, the Spatial Development Act allows the participants in the investment process to make changes to the investment design during the construction and installation works. Changes can be categorized into two main directions:

*Minor deviations* - according to the provisions of SDA, Art. 154, para 1, after the issuance of the Construction Permit are allowed for implementation the minor deviations after coordination with the designer of the site. Non-essential deviations are documented in the Site Order Book by order of the Designer and are reflected in the executive documentation upon completion of the construction.

*Essential deviations* - according to the provisions of SDA Art. 154, para 5, after issuance of the Construction Permit, amendments to the approved investment design within the scope of the essential modifications under Art. 155, para 2, items 5, 6, 7 and 8 shall be admitted at request of the Contracting Authority, accompanied by a notarized consent of the interested persons under Article 149, paragraph 2, based on an approved investment design to the issued Construction Permit. These amendments are indicated with an Order for supplementing the issued Construction Permit and are allowed before their implementation;

After the approval of the amendments to the investment design with the issuance of an Order for supplementing the issued Construction Permit, the approved additional design works and the corresponding construction and installation works shall be controlled by OE and shall be documented in accordance with the requirements and order specified in this Technical Proposal.

- ❖ **Delivery control**

- Surveillance of the provision and supply of materials, equipment and technological equipment

The Owner's Engineer will examine the contractors' contract schedules for the construction and supply of pipelines and will be informed with the envisages regarding the provision and supply of materials, installations and technological equipment. OE will review the drawings and specifications, get acquainted with the technological order for execution of the construction works, to verify that the scheduled deliveries are planned correctly by the contractors. In addition, a separate schedule of supplies of materials and installations and equipment by contractors will be required. Particular attention will be paid to the supply of materials, installations and equipment with a long delivery period.

OE will request from the contractor periodic reports on the state of supply of materials, installations and technological equipment, and will further require information on established delivery issues, and will then inform the Client if identifies probable problems. Will require from contractors to provide timely documentation of materials, equipment and technological equipment so that they can assess their compliance with the Contracting Authority's requirements.

In the event of changes of a different nature related to the supply of materials, facilities and technological equipment, will be monitored to process the change so that there is no delay in deliveries.

OE specifically proposes to apply the following techniques and practices to optimize the timing of approval of suppliers, materials and technological equipment:

- As soon as the construction and delivery contracts for pipelines have been signed, Contractors should offer suppliers of the main building materials.
- Contractors should prepare a preliminary delivery schedule for the main building materials.
- Preliminary specification of the large volume of input construction materials (especially inert) and specification of the potential suppliers to provide the necessary quantities.

Based on its experience, the OE considers that it is a good practice to select entire systems made up of different materials for execution of a certain construction work, but of the same brand, delivered by a single supplier, which we will propose to be applied and in these construction contracts wherever possible. Apart from the above, other good practices that we will endeavor to enforce under our authority, are:

- Avoid frequent switching of suppliers for specific materials;
- Submit at least two independent suppliers for a specific construction product for approval; or equipment, if possible, to ensure delivery and compliance with approved implementation schedules /to provide reserves/;
- Maintain continuous communication on our part with the Contractors, the Contracting Authority and, where necessary, directly with the suppliers of building materials or equipment.

For the purpose of the project, we will provide a specialist who will control the co-ordination on our behalf, together with the Key Experts on the relevant parts, and submission for final approval by the Contracting Authority. OE will review, agree, approve the proposals from Contractors' Contracts for Construction and Pipe Supplier, for Materials and Equipment, and Test Methodology. OE will not approve materials and equipment that do not meet the requirements of the Technical Specification of the Contracting Authority and the Construction and Pipe Supply Contracts.

OE will, within the set deadlines, review and comment on any request by the Contractor for input of materials and equipment in the construction, visit the site of the main materials production for quality assurance and compliance with the Contracting Authority's requirements. All approvals and statements accompanied by the relevant documents from Contractors of construction work and pipe supply, will be submitted to the Contracting Authority within the specified timeframe.

For this purpose, a procedure for the approval of materials and equipment using the appropriate forms will be in place to ensure that all materials and equipment are checked for compliance with the requirements of the Contracting Authority and the approved investment design. Contractors of construction works and pipelines supply will use a material approval form to submit products for approval by OE.

OE will require the Contractors to make and produce the materials and perform the works at the site in accordance with the requirements of the Contract, appropriately and carefully, according to generally accepted good practice, with appropriately equipped facilities and products. OE will require Contractors to provide samples of materials and relevant equipment information for review in accordance with the requirements of the contract documents. Each sample should have a designation of origin and purpose for input at the site.

OE will require the necessary accounting and construction documents related to the delivery of materials and execution of the construction and installation works, as well as a schedule of the resource provision.

During the surveillance for the provision and supply of materials, installations and technological equipment, OE will:

- Assess compliance with product certification requirements and approve materials, installations, and technological equipment proposed by contractors;

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- Approve, in agreement with the Contracting Authority, the suppliers of materials, installations and technological equipment proposed by the contractors;
  - Require the Contractors to provide a timetable for the necessary deliveries in time and control its updating;
  - Participate in a site visit, organized by a contractor under the relevant contract, at the manufacturer's plant for quality assurance of the main materials, installations and technological equipment, in agreement with and participation of the Contracting Authority. OE will prepare a list of the main materials, facilities and technological equipment subject to factory testing and acceptance prior to delivery and input in construction and will offer it to the Contracting Authority for approval;
  - Issue permits for deliveries;
  - Participate in the acceptance of materials, installations and technological equipment at the site, ensuring that the quantity and quality of the delivered materials correspond to those accepted at the factory acceptance test.
- *Supervision of the pipeline supply process*

OE will control all Pipe Supplier's activities to be carried out in accordance with the contract, verify that the activities of shipping, inspection and control of materials follow the approved procedures. Also, the main task is to ensure that the established organization is in place for the supply of linear pipes between the Line Pipe Supplier and the Contractor of the EPC, which includes:

- Verification to certify that the supply of linear pipes is in accordance with the Schedule of the Project;
- Observing procedures for shipping, inspecting and accepting materials, including shop and field inspections, reviewing the accompanying documentation that guarantees the Contracting Authority that the pipes can be accepted and paid;
- Control of compliance with transport procedures, including procedures for packing, loading-unloading, storing and securing during transport;
- Managing changes to queries, return fees and insurance claims;
- Actions to remove defects on delivered materials, as all defects (and their removal) being recorded in the checklist.
- Verify that accurate and complete documentation is available that meets the specifications. This includes presence during unloading the pipes in order to verify the delivered quantities and to record all damages to the delivered pipes;
- Verification that the pipeline identification system is complied with, and that they can be tracked to their respective documentation and
- Checking of storage, securing and conservation activities.

#### ❖ **Contract administration services**

In contracts administration for construction works and pipelines supply, OE will focus on monitoring the quality of project implementation within the contract term and budget. During the execution of the services, OE will continuously inform the Client of the progress of the works related to the design and execution of the construction, the quality of performance and defective works to be eliminated, any discrepancies between the completed construction works and the approved designs, possible delays, poor quality materials, achievement of financial plan, etc. OE will review/prepare payment statements (certificates) based on the requests for payments made by the Contractors of construction and delivery of pipelines.

In the process of contract administration, OE will review, agree, approve and send to the Contracting Authority all documents received from contractors of construction and pipelines supply,

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including the Work Program, Quality Assurance Plan, Health and Safety Plan, Environmental Plan, Traffic Management Plans, Material and Equipment Proposals, Design Calculations, Technology and Organization of Construction, Designs and Drawings, Test Proposals, and more. The Work Program may be approved with comments. It should include a detailed plan for the execution of all activities and deadlines for them, including the necessary timeframe for approving procedures and receipt of documents, drawings, permits, approvals, etc.

The program should focus on critical activities with regard to completion timelines and provide measures to overcome any delays in approved schedules. OE will require an update of the work program so that it indicates the changes that have occurred. It will not be allowed to accept the Program without the prior written approval of the Client, if it is longer than the Contractual Agreement. The Contractor under this contract will fulfill his duties as an Owner's Engineer in administration of construction and pipeline supply contracts, coordinate with the Contractors of Archeological Research Contracts in Bulgaria, the Contract for Construction Supervision in accordance with the SDA in Bulgaria and the Designer Supervision Contract according to SDA in Bulgaria, which are expressed generally in:

- Administration of guarantees and insurances;
- Communication with the EPC Contractor, Line Pipe Supplier and other Suppliers;
- Monitoring the progress and implementation of the Works Contract and the contract of Line Pipe Supplier and other project contracts;
- Managing payment applications and invoices, including a recommendation to the Client to proceed with payment;
- Management or applicable control over the management of contractual modifications/changes;
- Management or applicable control over the claims management;
- Management or applicable control over the management of contractual archives;
- Management of the completion of Works Contract and the Contract of Line Pipe Supplier Contractor and
- Supervision of training services provided by the Contractor of EPC to the Contracting Authority.

All activities by OE will take place within the deadlines set out in the contract and the assignment of services and, where not mentioned, within a reasonable timeframe. It is of particular importance for the timeframe of the project, that Contractors of Works Contracts and Linear Pipes Supply Contracts to provide in their programs the necessary deadlines for submission and approval of documents from OE prior to the execution of the different works (e.g. methods of execution, input materials, request for inspection) and others; as well as documents from control bodies such as the Waste Management Plan and Program, Waste Landfill Permit, Traffic Permits, etc.

Administration activities and overall control over the execution of Works contract (EPC) and Pipeline Supply Contract, will include:

- Monitoring and managing the status and progress of separate contracts and undertaking activities to comply with the project implementation timetables:
  - Monitoring the implementation of the detailed programs for works execution of contractors for works contract and Pipe Supply Contract;
  - Monitoring the quality of work;
  - Monitoring the implementation of safety, health and environmental protection measures at work;

- Monitoring the provision and supply of materials, installations and technological equipment;
- Monitoring staff mobilization, mechanization and other resources;
- Administration of requests for changing the suppliers;
- Reviewing the updates of the detailed work program and the provided cash flows of the contractors;
- Keeping the progress of the work;
- The function of a coordinator between the parties involved in the execution of the construction;
- Quality control and management;
- Effective control over compliance with contractual terms and deadlines:
  - Control of the agreed terms in the contracts for construction works and pipelines supply;
  - Control the activity of Contractors for Construction Works and Pipeline Supply to fulfill all obligations in accordance with the Contractual Terms;
  - Providing assistance to the Contracting Authority to prepare the relevant documents for imposing penalties under the contractual terms;
  - To advise the Client of any problems or controversies arising from the contracts for the construction works and pipelines supply;
  - Provide assistance to the Contracting Authority when administering the advance payment guarantee, performance guarantee and retaines amounts, if applicable, and all other guarantees in the contracts for Construction Works and Pipeline Supply;
  - Checking the insurance policies, indemnity policies, etc. provided by contractors in accordance with the provisions of the contract for Construction Works and Pipeline Supply;
  - Issuance of guidelines and proposals necessary and lawful to manage the implementation process;
  - When necessary, evaluate the modifications proposed by the Contracting Authority or contractors of Construction Works and Pipeline Supply;
  - Performs the instructions of the Contracting Authority when carrying out any other activities related to the control of the execution of the contracts for Construction Works and Pipeline Supply;
- Creating and maintaining, with access for the Client, a contract register;
- Verification, issuance of statements, coordination and issuance of a notification for approval of the detailed designs, technologies and organizations for implementation, as well as all other accompanying developments, prepared under the contracts for Construction Works and Pipeline Supply;
- Assist financial management of the project:
  - Controlling and managing the costs and financial plans of contracts for Construction Works and Pipeline Supply
  - Drawing up payment acts for approved payment requests from contractors
- Organizing and conducting meetings;
- Document management.

❖ **Representation of the Contracting Authority**

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As part of the project management activities, OE will represent the Contracting Authority before local and other authorities and bodies involved in the Project implementation, subject to explicit prior authorization by the Contracting Authority. At the request of the Client, OE will participate in all necessary on-site meetings, progress meetings, meetings at headquarters, etc., organized and conducted by the Contracting Authority.

#### ❖ **Preliminary written approval by the Contracting Authority**

OE understands that prior to any of the following actions, it must obtain explicit written approval from the Client and determines this requirement as a key point in the performance of the contract:

- Issuing definitions that would lead to an extension of the term of certain contract for Construction Works and Pipeline Supply;
- Issuance of Notification for approval of Contractor's elaborations-designs;
- Providing information on the project to institutions, authorities, media;
- Preparation and dissemination of written and other materials related to the project;
- Certification of payments for supplies coming from unacceptable suppliers;
- Certification of unforeseen costs or issuance of definitions that would lead to claims for unforeseen costs in the execution of construction contracts;
- Certification of any costs incurred by contractors of Construction Works and Pipeline Supply, related to dispute settlement procedures.

#### *2.1.1. Activity approach - tasks, steps, their sequence and coordination*

The implementation of the project management activities is based on the process-oriented approach for building, documenting, introducing and improving the efficiency of the project's quality management system, as this ensures the continuous management and control of the processes and the interaction between them. Below are defined all the interrelated processes that take place during the performance of the activities, which are the subject of the consultancy services, influencing the quality of the services provided by the Owner's Engineer and the expected result of the project, as well as the respective responsibilities related to the definition of the needs and the expectations of the Contracting Authority until the final satisfaction of its requirements.

In the implementation of the activity, the Owner's Engineer will be guided by the "PMBOK® Guide" (***A Guide to the Project Management Body of Knowledge***)

#### ❖ **Defining the processes needed for project management and their application in the team**

The Projects consist of processes, and the process is defined as a series of activities that lead to some result. For the current project to be implemented **within the timeframe and within the planned budget**, which means to match the expected results according to the service assignment, the project team, and in particular OE, must in particular:

- (i) select the appropriate processes necessary to achieve the objectives of the project;
- (ii) use a certain approach to meet the requirements and adhere to these requirements to meet the needs and expectations of the interested parties;
- (iii) strike a balance between the scope, time, cost, quality, resource and risk requirements to achieve the desired result.

The project management system requires that each project and product process be aligned and related to the other processes in order to facilitate coordination. Based on our experience in project management, we identify several phases that the current project will undergo. These stages will define the "project life cycle" and help identify, which key decisions and activities are needed and

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at what stage. In the strategic planning of the project we define the following stages, which contain the main activities and sub-activities under the project:

1. Start/Initiation - they are carried out in order to define the new project or a new phase of an already existing project;
2. Planning - implemented to establish the scope of the project, refine the objectives, define the target of action needed to achieve these objectives;
3. Implementation - they are executed for the realization of the assigned work in the project implementation plan in order to meet the technical specifications of the project;
4. Monitoring and control - necessary for tracking, controlling and regulating the progress and implementation of the project, as well as identifying areas where the plan needs to be changed and their initiation accordingly;
5. Completion - these are performed to finalize all activities from all process groups for the formal completion of the project or for a given phase of the project.

These process groups form the project management system, organized as a network of interrelated processes whose sequence and interaction are depicted in the figure below.

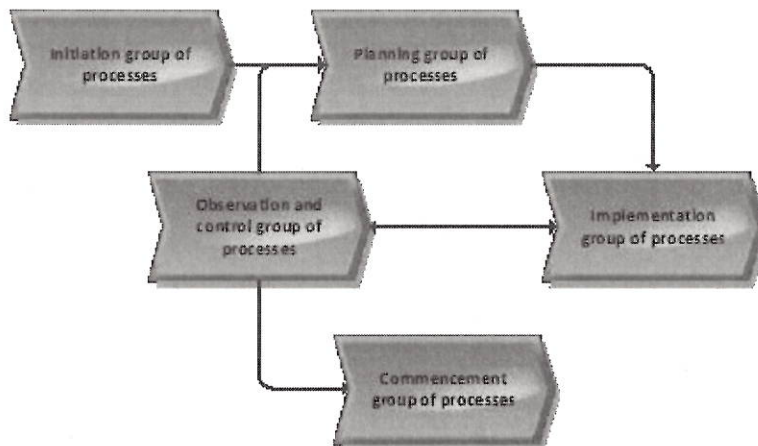


Figure 6 Process groups for project management

In order to ensure the efficient functioning of the process groups, it is necessary to apply the relevant criteria and methods depending on the type and level of the processes (basic and auxiliary). One method is the use of expert judgment that is used throughout the project period in the various stages of adaptation of the relevant processes in the implementation of the main design phases. This expertise is provided by the team of key and non-key OE experts. Work meetings (inaugural, regular coordination for progress, extraordinary meetings with third parties, meetings when necessary) are considered as a basic method for quickly identifying conflicting functional requirements, narrowing the gap between then involved parties, reviewing the work process, solving problem, sharing information, and more.

Another method is to carry out inspections that include activities such as inspection, measurement, examination and verification to determine whether the relevant Works, subject to this verification and the result of them, are meeting the requirements and criteria for accepting these works. When managing the project time, the Line Schedule analysis is the method used to create the project schedule, using the critical path method, etc., and for the control of schedule is used the method of managing the acquired value, as well as specialized software for project evaluation and management, which also has cost estimation applications.

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In terms of quality management in the project, processes are controlled periodically with a view to their continuous improvement. This is done during:

- internal audits, when checking the proper course of the individual QMS processes, according to the written regulations and in case of inconsistencies corrections are made;
- annual reviews by management when analyzing and evaluating the entire QMS and making improvements.

The objectives to be met with the implementation of monitoring and measurement the process are:

- Enhance efficiency by improving the organization and competence of staff;
- Enhancing project compliance by introducing improvements in processes.

There are several communication methods for exchanging information between project parties that OE will apply in different situations and which are directly related to ensuring the efficient functioning and management of the processes needed to manage the project. When it comes to achieving an effective way for a common understanding among all participants on specific topics, the so-called interactive communication, which is a multi-directional exchange of information between two or more countries, is applied. It includes meetings, telephone conversations, video conferences and more. When the information is sent to certain recipients to receive it, then PULL communication (downloading) is used and includes letters, emails, faxes, reports, and more. For very large information volumes or a very wide audience, PUSH communication (push-on), including intranet, cloud storage for large volumes of data, is used.

For the proper planning of processes, it is important to identify the resources needed to ensure the functioning and management of contract management processes. In the documentation for participation, the Contracting Authority has appointed the necessary experts to execute the order. For our part, we will also provide additional experts and support staff to ensure the successful execution of the contract, as required by the legislation and the Contracting Authority.

It is of particular importance to define the responsibilities and authorizations of the project team members detailed in section 3 "Organizational Structure".

In addition to scope, budget and timing, it is very important that the Team Leader should facilitate the discussion of the project, quality, safety and security risks and include project results in the Project Implementation Plan.

In addition to human resources, we have identified other resources needed to run the project management processes, which are discussed in detail in Section 3, at this stage.

In the main planning and monitoring and control processes, the auxiliary processes are applied: risk identification, qualitative risk analysis, risk response planning. These risk management processes aim at increasing the probability and impact of positive events and reducing the probability and impact of negative events in the project. Below this document we have identified specific risks and we have analyzed their possible impact, based on the information on this order.

The Project Management Services provided by OE will be implemented in two phases:

- Phase 1 - Services during the tender phase of the Project, before commencing construction;
- Phase 2 - Services during the construction phase of the Project.

The timeliness of the Project Management Activities is detailed in section 5 "**Indicative Linear Schedule for Implementation of Activities**", which sets out the sequence and coordination that ensure implementation at the level of separate tasks within the Project Management Activities.

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### 2.1.2. Risks and measures to avoid them

The Contracting Authority has identified the following risks in the simplified risk matrix threatening the successful implementation of project management activities:

- Risks before completion - Capital Expenses / Unforeseen Costs
  - Variations in the scope of activities;
  - Expenses related to novation/other form of transfer of pipes;
  - Liability of third parties;
  - Unsupported or refused EU funding, non-utilization of funds provided from the Energy Recovery Program;
- Risks after completion
  - insolvency of the main contractors; / Delay at Completion and Putting into Operation /
  - need to pay Advance payments;
  - Delay in schedule due to late start; Delay in the "Activation" of Signed Contracts
  - Price growth; Delay in the "Activation" of Signed Contracts
  - Termination of contracts; Delay in Activating Signed Contracts
  - Reducing production priorities; Delay in the "Activation" of Signed Contracts

#### ❖ A way to overcome the risks

The way to overcome the risks, their classification is described in subsection 1.2. of this proposal.

Below is a structured description of the management measures for each of the risks identified by the Contracting authority that may affect the project management activities.

#### ❖ Risk management measures

##### **Risk: Variations in the scope of activities**

##### **a) Description of the causes**

The causes for the occurrence of this risk are:

- *expansion of the project, resulting in complications and an increased need for resources;*
- *Improperly defined end result and possible delay of project delivery;*
- *problems with the integration of activities;*
- *a change in the dependencies of the activities.*

##### **b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The occurrence of variations in the scope of activities will result, respectively, in a change in the execution schedule, ie. shortening implementation deadlines in case there are no reserves. This in turn can lead to quality gaps.

**Probability:** rare.

**Impact:** Average.

**Classification:** low risk.

##### **c) When the risk is likely to occur**

At each stage of the Project development.

##### **d) Description of possible measures (avoidance, retention, reduction, transfer)**

The strategy to mitigate such a risk is that the Preliminary Requirements of the Contracting Authority should be documented very clearly and brought under control. From the outset, the scope of the Project must be clearly defined and coordinated between the Contracting Authority and the Contractor, as well as the procedure for introducing and approving changes in scope and priorities.

**e) Party bearing the consequences of the risk**

Contracting authority and Owner's Engineer

**f) Party responsible for risk management**

Owner's Engineer

**Risk: Costs related to novation/ other form of pipe transfer**

**a) Description of the causes**

The reasons that would create the preconditions for the occurrence of the present risk may be as follows:

- The EPC contractor does not have experience in using novice;
- The EPC contractor does not understand how to manage the new contract and exercise control;
- Unrealistic valuation of the offer by the EPC Contractor and insufficient amount of money to manage the novation;
- The Contracting authority loses control over the delivery contract;
- The EPC contractor calculates design with acceptable but lower quality to achieve a low cost that conflicts with the Linear Pipeline Supplier's contract;
- Disputes concerning the payment of services to the Linear Pipeline Supplier before and after the novation;
- The Contracting authority removes the possibility of disputes from the Service Provider;
- The EPC contractor instructs the Linear Pipe Supplier for works that are changes that result in a dispute.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The risk mainly affects the duration and cost of the Project.

**Probability:** often.

**Impact:** significant.

**Classification:** high risk.

**c) When the risk is likely to occur**

The current risk may arise after a contract for the supply of linear pipes has been announced.

**d) Description of possible measures (avoidance, retention, reduction, transfer)**

Risk mitigation measures can be applied to risk by taking early action, such as choosing a more stable provider.

**e) Party bearing the consequences of the risk**

Contracting Authority

**f) Party responsible for risk management**

Contracting Authority

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**Risk: Third party liability**

**a) Description of the causes**

- Delay in receiving coordination by the Road Infrastructure Agency of the Temporary Organization of Construction;
- Delay in obtaining reconciliation by NRIC in crossing railway infrastructure;
- Delay in receiving forestry licenses from State Forestry;
- Delay in the conduct of inspections by Directorate General Technical Inspection /GD TI/
- Delays in obtaining final accession contracts from electricity distribution companies.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The risk can not be avoided - Approvals and concerted by the relevant instances of the prepared documents will have.

The risk is not suitable to be accepted - it requires large reserve resources, mostly from time to time.

**Probability:** often.

**Impact:** Average.

**Classification:** medium risk.

**c) When the risk is likely to occur**

The risk may occur during the whole Project period.

**d) Description of possible measures (avoidance, retention, reduction, transfer)**

The risk should be shared and controlled between all participants, in individual contracts and at each workshop.

A major measure of managing this risk is the early informing of the external organizations about the Project in order to provide their views with specific specific requirements that are timely integrated into the Project.

Also important is the dialogue with all organizations - the availability of regular correspondence to present clearly, detailed and exhaustive the decisions of the Project in the aspects of the requirements of each of these external organizations.

**e) Party bearing the consequences of the risk**

Contracting Authority

**f) Party responsible for risk management**

Contracting Authority

**Risk: Unfunded or refused EU funding, non-utilization of the funds provided from the Energy Recovery Program**

**a) Description of the causes**

It is possible that during the implementation of the contracts there is a shortage of financial resources for the execution of timely payments for current and operating expenses due to delay of the advance and/or interim payments by the Contracting Authority. Delays in payments may be due to difficulties or lack of own funding (Beneficiary). It is necessary to analyze in detail the reasons for the shortage of financial resources, to examine the contract documents and to determine the party that will accept this risk, most often it is the Contracting authority.



Below we identified the underlying causes of the under-spending of the Energy Recovery Program, which in turn would delay and disrupt the implementation of the Project. Here are some of them:

- Problems for beneficiaries such as lack of sufficient experience, beneficiary difficulties in obtaining bank credits, too high expectations of beneficiaries regarding the possibilities of receiving co-financing and levels of support for their activities, etc.
- staffing problems - insufficient number of well trained specialists in the organization and management of aid; the inability of the administration to employ and retain highly educated and motivated staff, especially with professional training in the fields of finance, law and economics
- Organizational problems - delays in the preparation of tender documents, even when external consultants are involved, and in the case of similar projects; delay of the evaluation process; lack of clarity in the legislation on the settlement of procedures for the provision and management of EU funds as well as the regulation of coordination between authorities at national and regional level.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The risk is unsuitable for adoption - it is necessary to monitor and manage it continuously as it may lead to an extension of the time for completion or compromise of the Project.

**Probability:** rare.

**Impact:** significant.

**Classification:** medium risk.

**c) When the risk is likely to occur**

At any time during the development of the Project, in the event of a change in the policy and timetable of the Energy Restoration Program, as well as in violation of the EU grant agreement,

**d) Description of possible measures (avoidance, retention, reduction, transfer)**

Measures can be expressed in securing, albeit temporarily, alternative funding to make ongoing payments and to cover operating costs.

Other measures - pre-planning the funds over time, updating the project payout schedule, if necessary, complying with the project timetables, so that there is no delay in the works and, hence, the payments, etc. Control of Payments by the Contracting authority is essential for compliance with the adopted financial program, and the final control is on the part of the Project Management Services Manager before submission of the verification payment.

**e) Party bearing the consequences of the risk**

Contracting Authority.

**f) Party responsible for risk management**

Contracting Authority.

**Risk: Insolvency of major contractors**

**a) Description of the causes**

The main reasons that may lead to insolvency of a contractor are listed below:

- the impact of recessions on the construction industry;
- delay in regular interim payments, resulting in a disruption of the cash flow;
- tax obligations;
- lack of profitability, etc.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

One of the first things is to figure out the costs of doing the rest of the work, including the costs of repairing defects in construction work. Other losses (including deductions and liabilities that may be reallocated to the Principal under any other agreement) also have to be established.

When reviewing the aspects of the contract that can assist him in the contractor's insolvency, the OE should focus on the provisions in the contract that will provide quick and easy access to money.

If there is unfinished or unfulfilled work (or there are ongoing variations), usually such a risk results in the termination of the contract with the contractor concerned, but it is imperative that before the exercise of this right is exercised by the Contracting Authority, the provisions of the contract must be carefully considered. legal consultant.

**Probability:** rare.

**Impact:** average.

**Classification:** low risk.

**c) When the risk is likely to occur**

One or more of the following patterns of behavior or changes in the way the Project is being developed may mean that the main contractors have financial difficulties and that bankruptcy is forthcoming, namely:

- the employees of the contractor concerned who do not return to work or a total reduction in the amount of work on the spot;
- slowing the pace of work;
- facilities, equipment and materials "disappear" from the site;
- increasing the number of defects in carrying out the activities;
- an unreasonable claim by the relevant contractor to increase the contract value;
- non-payment of obligations to subcontractors, etc.

**d) Description of possible measures (avoidance, retention, reduction, transfer)**

One of the first things that should be done to find that one or the major contractors is at risk of insolvency is to closely monitor the contractor's performance both locally and financially. The financial performance of each guarantor should also be carefully monitored. In addition to this more obvious step, we outline below some other actions that can be taken to protect the position of the Contracting authority (as far as possible) when faced with a potentially insubordinate contractor, namely:

- If there is any suspicion that some of the major contractors may have financial difficulties, you must ensure that they have received all the bank guarantees and insurance of the company that are set out in the contract concluded between the two parties. Any outstanding bank guarantees must be sought immediately;
- It is necessary to verify that all relevant collateral guarantees have been provided and that all outstanding guarantees have been received immediately. Similarly, where third party rights are granted, the Contracting Authority must verify that all notices giving such rights are properly issued;
- A thorough audit of all on-site facilities, equipment and materials must be carried out and then safeguards are taken to ensure that what is in place can not be removed.
- The Contracting authority must establish what rights he/she has on the design and copyright in relation to the project and, where possible, obtain copies of any drawings or documents that he / she can obtain from the contractor of the EPC and each of the subcontractors and consultants of the contractor of the EPC.

- You must first check how much the payer has already paid. In doing this, careful consideration should be given to whether it has been overpaid and / or whether deductions have been deducted or released.

**e) Party bearing the consequences of the risk**

Contracting Authority

**f) Party responsible for risk management**

Owner's Engineer

**Risk: Need to pay Advance Payments**

**a) Description of the causes**

- Lack of funding
- No guarantee of advance payment by the Contractor /Supplier

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The risk will affect the time limit for the implementation of the Project.

**Probability:** rare.

**Impact:** significant.

**Classification:** medium risk.

**c) When the risk is likely to occur**

The risk may arise at the beginning of the Project.

**d) Description of possible measures (avoidance, retention, reduction, transfer)**

In order to avoid the risk, it is recommended to enter in the contract between the Contracting Authority and the Contractor/Supplier an explicit clause to be submitted to the Contracting Authority for an advance payment against which the advance payment is to be made.

**e) Party bearing the consequences of the risk**

Contractor

**f) Party responsible for risk management**

Contracting Authority

**Risk: Delay in schedule due to delayed beginning of work**

**a) Description of the causes**

The performance of any activity, even by only one participant, carries the risk of delay.

The reasons for this risk may occur in the form of:

- Changes in the preconditions of the project during the implementation;
- Delay / difficulty in providing source documentation and data needed to implement the project
- delay due to lack of control and coordination of participants in the construction process;
- delay in approving the activities under the Project Contracts - construction, supplies and services, which may impede the normal and timely progress of the Contractor's tasks;
- delay in the time schedules of some contractors for construction, supply or service contracts;

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- delay due to unspecified decisions of participants in the construction process;
- delay due to unusually unfavorable weather conditions during construction.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The consequences of this are usually: delay in time, more resources due to delays in engagement, poor quality / individually and in combination /.

**Probability:** often.

**Impact:** significant.

**Classification:** high risk.

**c) When the risk is likely to occur**

The risk can be realized at every stage of project implementation.

**d) Description of possible measures (avoidance, retention, reduction, transfer)**

The OE proposes mitigation measures that are related to the implementation of a service contract management plan including a communication plan, a quality management plan with strictly defined rules and forms to be followed by all participants in the OE team, managed by the project manager and project management services manager.

**e) Party bearing the consequences of the risk**

Contractor of EPC/Linear Pipe Supplier.

**f) Party responsible for risk management**

Owner's Engineer

**Risk: Price increase**

**a) Description of the causes**

High commodity price volatility and inefficient price management can seriously jeopardize the success of the project. Construction projects with the scale of this Project, which are being implemented in large timeframes, further increase the risk of price changes of materials over time. Price volatility immediately leads to financial risk and may lead to the overall failure of the Project.

Reasons for the rise in prices may arise from:

- inflation - the longer the construction period, the deeper the inflationary price increase over time has to be taken into account;
- rising prices of raw materials, fuels and energy;
- the occurrence of a shortage of material and / or raw material;
- economic crisis;
- initially erroneously set estimated prices in the bid of the respective contractor.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The impact of such a risk is usually most strongly reflected in the execution of the CMP itself as well as the supply of materials and equipment and, in the specific case, the supply of linear pipes.

**Probability:** often.

**Impact:** significant.

**Classification:** high risk.

**c) When the risk is likely to occur**

The risk may occur at each stage of the Project's life cycle.

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**d) Description of possible measures (avoidance, retention, reduction, transfer)**

The risk is inappropriate to adopt - it requires large reserve resources, mostly from financial resources.

One of the most important tools to mitigate such risk is hedging. As a first step, using this financial instrument is to determine the basis for determining the initial pricing for the interest rate or product by designing a structure that contains the findings in a working model to track and measure the results of hedging activities. Then choose the right strategy based on our understanding of the risk we want to mitigate. Several of the main strategies for interest rate or commodity hedging programs are: interest rate hedging and product hedging.

Many circumstances beyond the control of financial managers can influence the pricing of goods that are critical to the project implementation or the interest rates required for capital. However, the effect of such risk may be offset by effective hedging programs.

**e) Party bearing the consequences of the risk**

Contractor of EPC and Linear Pipe Supplier

**f) Party responsible for risk management**

Contractor of EPC and Linear Pipe Supplier

**Risk: Termination of contracts**

**a) Description of the causes**

The majority of standard construction and supply contracts contain explicit provisions governing the rights of one or both parties to terminate the contract in certain circumstances. The reasons may be the following without being limited to:

- Non-contractual termination rights
  - o Frustration: this happens when none of the parties has fulfilled its obligations under the original contract, but other circumstances have occurred to prevent the performance of the order as originally envisaged. The result must be that the further performance of the contract is impossible, unlawfully or fundamentally different from what the parties have provided for at the time of the conclusion of the contract.
  - o Refusal: this occurs when a party commits a breach of contract that is sufficiently serious to justify the innocent party to refer to the terminated instant-on contract and to claim compensation for breach of contract. Examples of refusal are: refusal to do work; leaving the construction site or removing equipment from the contractor; assigning other contractors to carry out contract activities; impossibility of the Contracting Authority to grant access to the site, etc.
- Contractual termination rights - Termination clauses entitle parties to terminate in certain circumstances. They mostly deal with violations of specific contractual obligations. There may also be termination rights in other situations, such as the occurrence of a force majeure event.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The risk directly affects the duration and cost of the Project.

**Probability:** rare.

**Impact:** critical.

**Classification:** high risk.

**c) When the risk is likely to occur**

At any time during the project development.

**(d) Description of possible measures (avoidance, retention, reduction, transfer)**

The risk can not be avoided.

Risk is inappropriate for adoption - it requires large reserve resources, mostly from time and finances.

The risk should be controlled by the Contracting Authority (OE).

A major risk avoidance measure is full compliance with the current legislation on public procurement as well as strict adherence to Treaty provisions.

**(e) Party bearing the consequences of the risk**

Contracting Authority and Contractor/Supplier

**(f) Party responsible for risk management**

Contracting authority and Owner's Engineer

**Risk: Reducing production priorities**

**a) Description of the causes**

Prerequisites for difficulties and reduction of production priorities and quality degradation in the organization of the EPC Contractor/Linear Pipeline Supplier may be of a different nature, namely:

- lack of responsibilities;
- lack of qualitative and effective coordination of the Project: Information difficulties; Insufficient resources for the Contractor's team;
- lack of resources;
- uninsured work front;
- delays in payments, etc.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The risk affects the execution time of the Project in the part of the delivery and installation of the linear pipes.

**Probability:** rare.

**Impact:** significant.

**Classification:** medium risk.

**c) When the risk is likely to occur**

The risk may occur at the moment when the line pipe delivery process is running.

**d) Description of possible measures (avoidance, retention, reduction, transfer)**

The risk can be avoided.

The risk is not suitable to be accepted - it requires large reserve resources, mostly from time to time.

Two factors are essential to prevent the risks that arise from hiring an executor / supplier: the company's contractual policy and the attitude of the project manager.

Based on risk management processes, four steps can be implemented to help manage project efficiently and maintain high levels of productivity:

- contract planning - timely start-up and subsequent implementation of the tasks according to the assignment.

- selection of contractor / supplier - after defining the scope and the selection criteria, the contract is awarded. The choice should be based on the bidders' tender documentation provided, references corresponding to the nature of the order, price and organization of the participant.
- Administration of the contract - the points of reference here are good planning, good communication between countries, distribution of finance, quality of work and construction documentation, etc.
- Corrective actions - Careful monitoring of the results obtained by the respective contractors/suppliers, comparing them with the contract and the timetable of the Project. It is often necessary to monitor the performance of the contractor's workforce as it is found in practice that insufficient control is exercised by the contractor himself.

**e) Party bearing the consequences of the risk**

Contracting authority

**f) Party responsible for risk management**

Contractor of EPC/Linear Pipe Supplier

**2.1.3. Logistics**

In accordance with the project timetable, the project management team will be mobilized in the Consultant's office. The proposed Project Leader and key team will be available from the start of the project, which will enable you to start work on receipt of the award notice. The remaining team members will be mobilized according to the project requirements and work progress, following the schedule of the EPC Contractor.

As the EPC Contractor's work program is not known, the mobilization plan is based on our understanding of the scope of our activities and our experience with similar projects.

Below we have presented a project management mobilization plan for the entire project.

Position	Month of mobilization (T+XX month)	Mobilization duration (month)
Project Manager (PM)	T0	28M
Quality Management System Manager	T0	28M
Head of Health, Safety, Security and Environment	T0	28M
Project Management Services Manager (Deputy PM)	T0	28M
Documentation Control Expert/ Administrator	T0	28M

Legend:

T0 = Start of the project

We will provide full support and technical support to the team of key and non-key experts by assisting them with all the administrative, secretarial and translational activities they will need in order to be able to focus fully on the fulfillment of their core performance obligations of the project. The consultant will ensure consistent and continuous teamwork, including regular payroll and social and health insurance. For the purposes of the project management activities and according to the requirements for equipment and facilities in Annex 9 - Contract Draft, the Consultant will organize and finance all activities necessary for the successful implementation of the contract - occupation of a central office for the project, office logistics, transport for the needs of its

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personnel, office equipment, communication equipment, measuring instruments, etc. According to the requirements for equipment and facilities part of the concession service contract project, the head office will be in close proximity to the headquarters of the Contracting authority, with the main coordinating staff available until completion of the contract services.

The following technical equipment will also be provided:

- Local area network computer hub with wireless network router, cable connections to fixed workstations with stationary computers, cable connections to telephone sets (in the case of VOIP type), cable connections to printers, network disk with storage space general access; in agreement with the Contracting Authority, a VPN connection will be provided to the Contracting Authority's network for permanent jobs.
- Reserve Power Supply (UPS) for stationary computer configurations and communication equipment and wiring;
- Fixed computer configurations with LCD monitors and laptop computers (laptops) with screen size > 12". Computers will have licensed software, such as dwg preview and printing software and pdf backup software installed on desktop computers;
- Network multifunction device (printer, scanner, fax, copier) suitable for office use (heavy load);
- A3 color sheet-fed network printer;
- Fixed line telephones;
- Mobile devices;
- Office supplies and stationery.

The Consultant will provide the necessary licenses for the software used by its personnel and necessary for the effective performance of its duties and with the other participants in the project implementation, in particular: operating systems, office applications and antivirus software compatible with Microsoft formats Office - the number of computer configurations, one license for software for viewing, editing and printing drawings compatible with the formats Autodesk Autocad and backup software compatible with the Adobe Acrobat (pdf) as well as other professional software required for the work of specialists. The software will be purchased and tuned for update by the vendor for the duration of the contract.

For the purposes of Phase 2 of the project, the Consultant will exclusively use the vehicles provided by the EPC Contractor for the purposes of the project.

#### *2.1.4. Organization of staff - distribution of functions and assignment of tasks*

The Project Management Team is subordinated to the Project Manager and will be structured as follows:

- Full time project team at the headquarters for the entire project period, composed of the Project Management Services Manager, Quality Management System Manager, Health, Safety, Security and Environment Manager and Document Controller/Administrator .
- Par time engaged team consisting of the Head of Engineering Design (Leader of Engineering) assisted by non-key experts in various disciplines, such as Mechanical Engineer/ Pipeline Engineer, Electrical Engineer, SCADA/ATP Engineer, Gas pipeline Engineer, civil engineer and other experts as needed.
- Team for construction supervision activities, consisting of full-time and part-time experts and positioned on the project's office squares. The team will be composed of Head of Construction Supervision, Head of QA/QC, material inspections and non-key experts, as Deputy Head of Construction Supervision, Resident Engineer for the Greek Section, Gas



Pipeline Inspectors, Works Inspectors, Inspectors for Specialized Inspections and others. In addition to the construction supervision team, shop inspections will be carried out by independent inspectors (2) certified in accordance with Greek legislation.

The main OE staff for service delivery is detailed in section 3 "Organizational Structure" of this document.

**Allocation of tasks and responsibilities**

For efficiency and effectiveness, we will share the functions and responsibilities between the experts in a way that ensures the harmony and integrity of the process. On the basis of the distribution of functions and responsibilities among the members of the Contracting Authority's team designated to carry out project activities, a system of control over the current performance of the activities of the individual members will be established, guaranteeing to the highest degree the successful accomplishment of the assigned tasks and functions. The control will be combined with immediate communication between the Contracting Authority's team and the OE team, aiming at maximizing the results of the accomplished tasks and their timely completion.

Activities and tasks of the Owner's Engineer (OE) implementation of project management services	Responsible expert from the OE team
Project organization services	
Preparation of Activities Breakdown (WBS)	Project manager; Project Management Services Manager; Head of Engineering Design; and Head of Construction Supervision
Development of a complete breakdown of costs and values (Cost breakdown)	Project manager; Project Management Services Manager
Development of a project implementation plan (PIP) containing plans and procedures	Project manager; Project Management Services Manager
Preparation of a Detailed Overview Schedule to level 3	Project manager; Project Management Services Manager
Master Control Schedule to Level 4	Project Management Services Manager; Quality Management System Manager; Head of Engineering Design; Head of Construction supervision
Conducting a Project Seminar, Critical Factors, Indicators	Project manager; Project Management Services Manager
<b>Project implementation</b>	
Health, Security, Safety and Environment (HSSE)	Head of Health, Safety, Security and Environment
Quality management	Quality Management System Manager
Commercial management services	Project Management

	Services Manager; Head of Quality Assurance and Quality Control and Material Inspection
Monitoring and reporting on progress	Project Management Services Manager; Head of Engineering Design; Head of Construction supervision
Planning and schedules	Project manager; Quality Management System Manager
Cost estimation, benchmarking and monitoring	Project manager; Quality Management System Manager
Communication management and document control	Project Management Services Manager; Quality Management System Manager
Project Risk Management	Project manager; Project Management Services Manager; Quality Management System Manager
Changes management	Project manager; Project Management Services Manager; Quality Management System Manager
Supervision of EPC Contractor's orders and Linear Pipe Supplier	Head of Quality assurance and quality control and material inspection; Key experts to provide the services of independent inspectors for field and shop inspections
Supervision of the pipeline delivery process	Key experts to provide the services of independent inspectors for field and shop inspections; Head of Construction supervision
Contract administration services	Project manager; Project Management Services Manager;
Representation of the Contracting Authority	Project manager

## 2.2. Engineering assistance

❖ **General strategy of handling with technical documentation and communication between parties**

The engineering Team will be managed by the Head Engineering Design Manager and it will monitor, observe and supervise all engineering works performed by the EPC Contractor to ensure that the Project is satisfactorily designed and engineered in accordance with the requirements of the EPC Contract.

The Engineering Team will operate at Consultant office and also deploy their engineering support Engineers to the EPC Contractor's Engineering Location(s).

❖ **Engineering and Design Supervision during the Detailed Design Phase**

The OE shall oversee on behalf of the Contracting Entity the engineering and design works to be performed by the EPC Contractor in accordance to the Works Contract (including the technical design for Bulgarian territory and FFED for the Greek territory).

The OE, shall, as a minimum as representative of the Contracting Entity, review the detailed design against both the established FEED for the Greek section and the technical design for Bulgarian section.

The OE shall verify to the Contracting Entity that the pipeline system is engineered in accordance with the Project specifications, that the detailed design is sufficient and fit for purpose and that the pipeline system can operate in accordance with the performance guarantees specified in respective project contracts.

The Services related to engineering and design supervision will in summary include the following activities:

- Review and approve for the needs of the Contracting Entity of all engineering deliverables produced by design entities to ensure progress and compliance with all relevant contractual documents/requirement. OE will generally review all engineering documents when issued to the Contracting Entity;
- Review design entities' development of process flow diagrams, P&ID diagrams, plot plans and hazardous area classification ;
- Review design entities' development of designs for critical major Equipment items including appropriate attendance at Supplier/manufacturers' meetings as necessary;
- Respond to technical queries from design entities;
- Participate with design entities in safety and HAZOP review meetings etc. as listed in design contracts on behalf of the Contracting Entity and
- Review technical content of claims for changes in the technical requirements specified in the Works contract for the needs of the Contracting Entity.

❖ **Engineering and Design Supervision during the Procurement Phase of the EPC Contractor**

The OE shall supervise during the procurement phase the EPC Contractor and its third-party affiliates in regard to the compliance of the project objectives as well as the technical requirement specified in the Works Contract.

The OE activities shall include the following:

- **Material Procurement**

This activity will be led by the Head Engineering Design (Engineering Manager) supporting the Project manager, his responsibility would be to co-ordinate with EPC Contractor and various disciplines of the OE organisation to ensure smooth reviews and approvals. He shall be the single point of contact for the EPC Contractor's procurement manager, shall review the contractors report and provide inputs and area of concerns to the project control manager for overall project reports.

OE will develop a procurement progress monitoring procedure which shall essentially cover the following activities of EPC Contractor: Material Requisition, Invitation to bids, Receipt of bids, Technical bid evaluation submission and review by OE, Commercial evaluations and recommendation for placement of orders by EPC Contractor and Purchase Requisition.

- **Vendor/Subcontractor document review/Follow-up**

OE shall perform the following reviews on the Contractor's scope materials to ensure that EPC Contractor and vendors adhere to Contracting Entity's specifications and relevant standards:

- Material Requisitions
  - Painting requirement, colour code, specifications, etc.
  - Spare parts list;
  - Data Sheet
  - Inspection Data Sheet
  - Technical Specification
  - Packing and Dispatch Instructions
- Technical bid Evaluations for all materials and sub-contractors
- Purchase Requisitions
- **Inspection and Expediting**

OE shall perform the following activities:

- Review of Quality Assurance Plan (QAP) and critical test procedures.
- Performing Quality assurance and inspection functions necessary to verify compliances with specifications
- Witnessing/attendance of FAT for major equipment such as Ball valves, glove valves, plug valves, metering, control valves, actuators, or others required by Contracting Entity or where problem/delays are occurring which may impact project schedule;
- Coordination with the TPI (particularly on the Greek Part);
- Witnessing/attendance of SAT for all equipment and material;
- Review and monitor the EPC contractor procurement and sub-contractor progress status and integration of the inputs to the project progress reports. Highlight the area of concerns and critical issues.

The above activities will also be performed for the major sub-contractors materials such as SCADA, Telecommunication, Cathodic Protection, etc...

- ❖ **Engineering and Design Review during the Construction Phase;**

During the construction planning phase, the OE shall review the EPC Contractor's construction planning activities and deliverables to verify that these are in accordance with overall Project requirements. The main activities shall be following:

- Review/approve Contractor's construction Plan, procedures, method statements, site sketches, drawings, etc prepared and submitted by EPC Contractors.
- Review/approve Contractor's organisation, tools and equipment, work methods and schedule
- Review and approve material procurement plan;
- Compliance to Government & authorities' requirements;
- Site and Safety regulations
- Compliance to Environmental requirements
- Review of Contractor's permit to work
- Advise Contracting Entity of over/short supply and damaged shipments by vendors.
- Review work plans, inspection plan and traffic management plan prepared and submitted by EPC Contractors.
- Verify that the Contractor establishes the pipeline route and detailed engineering in accordance to FEED design and in accordance to Contractual requirements.
- Clarify site queries to EPC Contractor
- Review Quality assurance plans and inspection requirement, acceptance criteria, etc
- Day-to-day contacts with the Project Manager and reporting.
- Assisting the Project Manager in his duties for site issues.
- Processing and distribution of submittal information received from the EPC Contractor on site.
- Review and check for the needs of the Contracting Entity of final technical documentation ("as-built drawings").

#### *2.2.1. Activity approach - tasks, steps, their sequence and coordination*

According to the assignment of the Contracting Authority, as an Owner's Engineer, we will apply the methods and approaches below for the fulfillment of our obligations according to the requirements of the Contracting Authority when implementing the activities within the scope of the project.

We will comply with our methods and approaches with the Contracting Authority's requirements included in the Terms of Reference and any other obligations and rights that are imputed to us under the Consultancy Services Agreement.

Our methods and approaches as Owner's Engineer for the implementation of our Project activities will be developed and implemented in the direction of meeting the objectives set and achieving the expected results.

#### **Main method: Implementing an active interaction with all stakeholders and project participants and their teams:**

**Objective:** Establish a working relationship, co-operation, and a constant relationship between stakeholders and project participants in timely implementation of all activities, sub-activities and tasks foreseen in the project.

#### **Consultant Approaches:**

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- Coordination of initial documentation on receipt of tasks and launch of Pipeline Supply and Construction Contracts;
- Performing joint control with the Contractor of the EPC in terms of detailed design preparation and the necessary for the design coordinations by external to the Contracting Authority parties;
- Control during the design process, including recommendations and proposals for approval by the Contracting Authority in pursuance of the main objective, timely and quality preparation of the detailed design. This approach is fully focused towards helping the EPC Contractor and the Contracting Authority;
- Establishing a direct and permanent relationship between the Project Leaders of the Contracting Authority, the Owner's Engineer, the Linear Pipeline Supplier and the Contractor of the EPC;
- Organization of meetings between the Team Leaders, Owner's Engineer, Linear Pipe Supplier and EPC Contractor to clarify the tasks;
- Organization of operational workshops between the teams of the Contracting Authority, the Owner's Engineer, the Linear Pipeline Supplier and the Contractor of the EPC , for setting specific tasks and deadlines for their implementation;
- Making individual personal contacts between the Consultant's experts and the specialists of the Linear Pipeline Supplier and the Contractor of the EPC;
- Preparation of preliminary statements on all parts of the presented design work;
- Preparation of final detailed designs after a positive statement of the Consultant and approval by the Contracting Authority.

**Basic method:** Effective control of the activities within the scope of the Contracts for the Delivery of Linear Pipes and Construction, depending on their technological sequence on the part of the Project Manager and his / her experts, as well as a permanent connection with the participants in the construction process.

The continuous and timely control over the implementation of the activities within the scope of the Contract for the Delivery of Linear Pipes and Construction aims at fulfilling the assigned tasks and achieving the objectives of the Project.

**Approaches to activities implementation:**

- **Detailed introduction by the Project Manager and the experts of:**
  - Existing technical documentation provided by the Contracting Authority - the engineering and design documentation (FEED) and the technical design;
  - Documents and reports prepared after the FEED and the technical design until the award of the Construction Contract and the contract of the Linear Pipeline Supplier, including a review of the work design carried out by ICC BSE AD and its shareholders IGI Poseidon and BEH;
  - Documentation of the Contractor of the EPC;
  - The documentation of the Linear Pipe Supplier;
  - The requirements of applicable building regulations.
- **Permanent interaction between the teams of the participants in the project:**
  - Relationship between Team Leaders - clarification of the main tasks and plans for their implementation, as well as organization of the team working together;

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- Relationship and interaction between the Consultant's and the Direct Contractors - the EPC Contractor and the Linear Pipeline Supplier and Project Designers, as well as the Managers in the respective directions to the Contracting Authority, to clarify the specific tasks.
- **Preliminary and continuous control of:**
- Documentation of the Contractor of the EPC;
  - The documentation of the Linear Pipe Supplier;
  - The design work of the Contractor for the EPC;
  - The public procurement activities of the EPC Contractor related to the design solutions;
  - The design process during the construction phase;
  - The final technical documentation ("as-built" drawings) for the Contracting Authority's needs;
  - The state of the documents by using a database to monitor the information and report on progress;
  - Requests for change/contractual variations/proposals submitted by the Contractor and the Linear Pipe Supplier;
  - Compliance of the design work with the requirements of the control bodies expressed in the letters of agreement and the preliminary contracts;
  - Compliance with applicable Bulgarian and Greek environmental legislation.
- **Preliminary control of the construction materials and products intended for use** - The Head of the QA/QC and inspection of the materials together with the help of the non-key experts will carry out strict control prior to the input of any materials in the works.
- Permanent control over the timely preparation of the required documentation according to the technology of the construction works:
- Work drawings and details on the part of the EPC Contractor and the Linear Pipeline Supplier of the OE;
  - The technical results, reports and other documentation provided by the EPC Contractor and the Linear Pipeline Supplier to the OE;
  - Changes during construction;
  - Executive drawings - in the case of non-essential changes, the requirement of partial drawings/details, which will later be presented as as-built drawing;
  - Preparation of documents for establishing the fitness of the construction for use and issuance of permits for use.
  - Complete construction documentation.

Our approach as Owner's Engineer for the implementation of this project will be based on the high professional qualification of the Project Manager and the experts in the relevant parts. The OE team will be composed of qualified experts with extensive experience in the implementation of natural gas transfer and linear infrastructure projects as well as experience in project management and in particular construction contracts. For quality performance of our services, as a Consultant, we will organize our team in such a way that all experts are involved in the process of implementing the project activities and tasks. The Project Manager will monitor the optimal distribution of the experts and their active participation in the activity implementation.

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We believe that with the above described methods, approaches and engineering practices, the Project will be implemented on time according to the indicative program of the Project and within the planned budget.

❖ **Common strategy for dealing with technical documentation and communication between the parties:**

➤ **Review of Engineering Assistance Services**

The services that will provide the OE as the Contracting Authority's representative regarding the engineering, are review and supervision of the detailed design prepared by the EPC Contractor.

The OE will also review the documentation prepared by the Linear Pipe Supplier as the representative of the Contracting Authority.

The engineering and design review services to be provided by the OE are:

- In addition to the Phase 1 review, a detailed review of the existing technical documentation provided by the Contracting Authority - the engineering and design documentation (FEED) and the technical design - the Engineering Design Manager together with all non-key OE experts (on the required design parts) will carry out a thorough review of all the existing technical documentation submitted by the Contracting Authority - the engineering and design documentation (FEED) and the technical design. This review will conclude with a report containing comments and possible gaps in the prepared documents. The Engineering Design Manager will request and track all comments and omissions in the produced documents to be reflected and corrected during the design phase of the EPC Contractor. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget;
- In addition, to the review carried out in Phase 1, a detailed review of documents and reports prepared after the FEED, and the technical design, to the award of the Construction Contract and the Contract of Linear Pipeline Supplier, including a review of the detailed design carried out by the ICGB JSC and its shareholders IGI Poseidon and BEH - the Head of Engineering Design together with all non-key experts of the OE (in the required design parts) will carry out a thorough review of all documents and reports prepared after the FEED and the technical project, to the award of the Construction Contract and the Contract of the Linear Pipeline Supplier, including a review of the detailed design carried out by ICGB JSC and its shareholders IGI Poseidon and BEH. This review will conclude with a report containing comments and possible gaps in the prepared documents. The Engineering Design Manager will request and track all comments and omissions in the produced documents to be reflected and corrected during the design phase of the EPC Contractor. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget;
- Review and comment on the documentation of the EPC Contractor - Engineering Design Manager, QMS Manager and the Head of QA/QC and Material Inspections, together with the necessary OE non-key experts, will thoroughly review the documentation of the EPC Contractor. The main purpose of the review is to establish the compliance of the documents with the requirements of the Contracting Authority and the provisions of the Construction Contract. This review will conclude with a report containing comments and possible gaps in the prepared documents. OE experts will request and track all comments and omissions in the produced documents to be reflected and corrected by the Contractor for the EPC within the terms of the Construction Agreement. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget;



- Review and comment on the documentation of the Linear Pipe Supplier ensuring that it complies with the specification - Engineering Design Manager, QMS Manager and the Head of QA/QC and materials inspections, together with the necessary non-key OE experts, will make a thorough a review of the documentation of the Linear Pipe Supplier. The main purpose of the review is to establish the compliance of the documents with the Contracting Authority's requirements for the production of linear pipes and the provisions of the Contract for the Delivery of Linear Pipes. This review will conclude with a report containing comments and possible gaps in the prepared documents. OE experts will request and track all comments and omissions in the prepared documents to be reflected and corrected by the Linear Pipe Supplier within the terms of the Linear Pipeline Supply Agreement. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget;
- Review and acceptance of the design work of the Contractor on behalf of the Contracting authority - The Head of Engineering Design together with all non-key OE experts (on the required design parts described in 2.2.4) will perform a thorough review and analysis of the design work Contractor of the EPC. The main purpose of the review is to establish the conformity of the design work with the Contracting Authority's requirements, the Technical Specifications (the FEED and the technical design documentation) and the provisions of the Construction Contract. This review will end with a report containing comments and possible gaps in the work design. The Engineering Design Manager will request and track all comments and omissions in the design work to be reflected and corrected by the Contractor for the EPC within the terms of the Construction Agreement. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget;
- Review and supervision of EPC Contractor's procurement activities related to design decisions - in the procurement process by the EPC Contractor to subcontractors and counterparties, the OE's experts will exercise direct control (without interfering with the EPC Contractor to perform its obligations) to ensure that these contractors and subcontractors will deliver and/or perform the activities assigned to them in accordance with the Contracting Authority's Requirements and the contract documents (technical specifications, detailed design, technical design, etc.);
- Engineering assistance and control during the design process within the construction phase - during the design process in the construction phase, the OE experts will perform complete management of the process of work drawings elaboration, ensuring timely review of the drawings, making possible corrections on them, removing gaps in the drawings from the EPC Contractor and their timely approval in order to execute the construction activities within the stipulated deadlines.

It is possible that during the construction execution, a design deficiency of construction activities or materials will occur which will lead to delays in the execution of the construction works. If such a problem arises, the OE will directly control the process of notification of the defect, the intervention of the respective design team (the Contractor of the EPC, the Author Supervisor of the Technical Design in Bulgaria, the Author of the Documentation for Comprehensive Engineering and Design - Front End Engineering Design (FEED) in Greece) and the timely presentation of a revised design solution so as to minimize the impact on the project implementation timeframe or on its value. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget;

- Examination and verification of the final technical documentation ("as-built" drawings) for the Contracting Authority's needs - during the construction phase and after the actual completion of the construction, the OE experts will require the Contractor to draw up executive drawings for the non-essential changes from approved designs. The experts of the OE will control the drawing up of the executive drawings, will verify their correctness, their technical development, according to the requirements of the Contract Documents. Control of the as-built drawings will be performed by the Head of

Engineering Design and non-key experts on the relevant design parts. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget;

- Monitoring the state of the documents by using a database that allows monitoring of information and progress reporting – OE experts will continuously monitor the state of the documents using a database. As part of the Project Implementation Plan, and in order to ensure transparent communication, the Consultant will develop a web-based document management system (DMS) that will allow control of the movement and archiving of documents related to with the implementation of the contract. All documents will be uploaded to a central web based server where, depending on given access rights, each of the registered users - experts and others - can view, download and edit the documents uploaded to the platform. The document management system has the following advantages:
  - Uploading, downloading and reviewing of documents can be done by any office. Access rights ensure that certain documents can not be reached by unauthorized users;
  - All project documentation, letters, minutes of meetings, reports are prepared centrally. The Expert/Party responsible for the preparation of the document will have the responsibility to upload the file to a predefined folder;
  - At the end of the project, DVDs can be prepared with all the files, so structured and complete project information can be distributed on demand;
  - The DMS could illustrate the flow of payments (a special tool that will be created by the Consultant);
  - Uncontrolled distribution of documents by hand, by e-mail, by letters or by courier is not allowed;
  - The flow of documentation is controlled;
  - Allows state control and review of drawings and reports, other documents;
  - Significant savings are made (human and time) for the implementation of activities, etc.

A very important milestone in the implementation of the project, is the distribution of responsibilities and constant control over the proper use of the system by all users in the Consultant's team in order to avoid loss of information and / or duplication of different versions of documents and drawings. In this sense, the project plan, as part of the web-based system, will develop rules for working with the system, determining levels and access control, and how documents will be stored. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget.

- In the case of change requests/contractual variations, review of proposals and evaluation of contractual options from a technical and commercial point of view for the Contractor's needs, the OE will provide full assistance to the Contracting Authority in managing the project costs. In the event that changes to the approved designs and/or part of the work to be performed, are required, the work/design/detail to be replaced will be submitted for approval to the Contracting Authority, stating the reasons for this, and indicate what they will be replaced. The OE experts will assess the change that has been made and the impact it will have on the cost and timing of the Project. In making the assessment, if necessary, we will measure the work that has occurred, and we will take appropriate action to identify and negotiate unit prices for the works with the Contractor for the EPC. Prior to issuing a Change Order to the EPC Contractor, the OE will require written approval from the Contracting Authority. The change procedure will follow strictly the provisions of the contract. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget.

In order to fulfill the above tasks, the OE will develop plans and procedures for engineering management, including for technical issues and deviations (for the Bulgarian section according to Article 154 of the SDA). These plans and procedures will be developed in the Project Implementation Plan and will ensure full management of design results and other technical results.

By exercising control over engineering and design, the OE will engage in Design Conflict Consultations as the Contracting Authority's representative and, in case of opportunities, will identify with the Contractor and other third parties as may be required to find the optimum solution. The main conflicts will be discussed with the Contracting Authority and those that have a significant impact (the level will be agreed between the Contracting Authority and the OE in the Project implementation plan at the beginning of the Services) will be approved by the Contracting Authority. When the selected options result in a change in cost or reflection of a schedule that is outside the authorized powers from the Contracting Authority, the OE will recommend a preferred version to the Contracting Authority, together with all relevant supporting Information for a decision by the Contracting Authority. The functions of the OE in terms of conflict resolution will not interfere with the powers of the Company under Construction Supervision to issue prescriptions and orders and the objections under the SDA for the Bulgarian section of the route (under Article 168, paragraph 4 of the SDA).

➤ **Standards and normative acts**

The OE maintains, updates and manages the rules and standards approved and applicable to the project and ensures compliance by all designers as far as acceptable under applicable legislation unless formal deviation is permitted through approved procedures – the OE will create a database with all applicable standards, normative acts and regulations according to the European, Bulgarian and Greek legislation, which are relevant to the implementation of the Project activities. This database is integrated into the document management system that the OE will develop and execute in the Project implementation. The Consultant will exercise control over compliance and enforcement by all participants and parties (to the extent permitted by law) with all legal and regulatory acts pertaining to the Project implementation. We believe that with this good engineering practice, the Project will be implemented within the indicative program and within the planned budget.

➤ **Review, comment, and technical endorsement by the EPC Contractor and the Pipeline Supplier**

The OE examines the technical results, reports, and other documentation provided by the EPC Contractor and the Linear Pipeline Supplier to verify the accuracy, completeness, format and content for the Contracting Authority's needs. The OE ensures the timely submission of all reports and other documentation required to be handed over by the Contracting Authority's designers under the project contracts - the Engineering Design Manager, the QMS Manager and the Head of QA/QC and material inspection, together with the necessary non-key experts, the OE will conduct thorough reviews of any technical results, reports and other documentation provided by the EPC Contractor and the Linear Pipe Supplier. The main purpose of the reviews is to check for accuracy, completeness, format and content of the documents with the requirements of the Contracting Authority and the provisions of the Construction Contract and the Contract for the Delivery of Linear Pipes. These reviews will end with reports from the OE containing comments and possible gaps in the prepared documents. OE experts will request and track all comments and omissions in the prepared documents to be reflected and corrected by the Contractor of the EPC and the Linear Pipeline Supplier within the deadlines provided for in the Contracts. In addition, OE experts will monitor and require the timely submission of all reports and other documentation that are required and should be submitted by the contractor's designers under the Project Agreements.

➤ **Technical issues and deviations**

The OE will be responsible for resolving any technical issues raised by the EPC Contractor and the Linear Pipeline Supplier, including any technical issues raised by the EPC Contractor during

the design phase and during the construction phase. The OE will ensure that all technical issues raised, as well as the answers to them, will be submitted in writing. Each technical issue will have a unique identifier for tracking purposes and be recorded in the technical issues register, along with all related documentation. Any additional technical question will be referred to the original one. Technical issues that have not yet been answered will be subject to a "tracking" procedure at appropriate intervals at meetings between the OE and the EPC Contractor/Linear Pipe Supplier. The OE will analyze any technical inquiry and, where necessary, propose a solution to the Contracting authority acting as a Consultant, or instruct the Designer on behalf of the Contracting Authority if authorized to do so. The OE will provide timely responses, in accordance with the deadlines provided for in the Contractor's Terms of Service, to any technical issues raised by the Contractor for the EPC to ensure that there are no adverse effects on the timing of the key milestones of the Project or late claims, arising from a delayed response.

Any technical issue that has the potential to adversely affect the timing and/or costs that exceed the explicit power of the OE (the level will be agreed upon by the Contracting Authority at the beginning of the Services) will be referred to the Contracting Authority for resolution together with a recommendation from the OE. Such recommendations will be made in writing, describing the advantages and disadvantages of the alternatives in sufficient detail to justify the OE recommendation. The OE will review for the Contracting Authority's needs the EPC Contractor's proposals for deviating from the Project standards, for example to comply with local laws and requirements, resolve conflicts between standards, norms or specifications detailed in the Project Specifications and review the proposed standards from the EPC Contractor. All technical deviations will be managed and registered in the technical deviation system according to the approved procedures. For the Bulgarian section, Art. 154 of the SDA.

In addition to the timetable and the cost of the Project, the OE will consider potential "substantial changes" (for the Bulgarian section under the regime for establishing and approving deviations under Article 154 of the SDA) of the technical design and subsequent changes in the building permit on Bulgarian territory. In this case, the OE will inform and coordinate the issue with the Contracting Authority by providing a statement on it. These functions of the OE will not obstruct the implementation of the procedures for making substantial changes to the technical design of the Bulgarian section of the pipeline route, if these are required but will be aimed at anticipating or supporting the decision of the Contracting Authority.

All the above activities will be carried out mainly with the document management system that the OE will develop and implement in the implementation of the Project.

➤ **Stop management**

The OE ensures that project suspensions are properly managed when designing the Project by the EPC Contractor and monitors the resolution of all stoppages to achieve a finalized status. The Engineering Design Manager will perform complete management of the process of suspension of design results by the EPC Contractor. The Engineering Design Manager and non-key experts on the separate parts of the project will be supervised during the design work of the EPC Contractor. In the event of design deficiencies, the Engineering Design Manager will order a suspension of the design and will require that all work projects be brought into line with the requirements of the Contracting Authority, the Technical Specifications (General Engineering and Design Documentation (FEED) and Technical Design Documentation); and the provisions of the Construction Contract. The Engineering Design Manager will monitor all stops to achieve a finalized status, namely revised work design. These activities will be carried out mainly with the document management system that the OE will develop and implement in the Project execution.

➤ **Numbering of equipment and data archives**

The OE monitors the development of appropriate procedures for equipment numbering by the EPC Contractor and monitors the indexing, layout, printing and binding of data records for the Equipment – OE experts will review and approve the development of registers and appropriate

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procedures for numbering equipment from Contractor of the EPC. In addition, the Consultant's experts will certify that the EPC Contractor correctly prepares archival data for the Equipment containing the necessary layout, indices and other attributes. These activities will be carried out mainly with the document management system that the OE will develop and implement in the implementation of the Project. A Table of Records to be prepared and/or maintained by the Owner's Engineer in performing the engineering assistance activities is shown in clause 2.2.4 below.

➤ **Documents control and final drawings**

The OE monitors the development and approves the document control registers submitted by the EPC Contractor and ensures on behalf of the Contracting authority the correct recording and archiving of the technical results until the provision of the as-built drawings and documents – the OE experts will review and approve the registers to control the documents submitted by the EPC Contractor. Additionally, the Consultant's experts will certify that the EPC Contractor performs the correct recording and archiving of the technical results until the execution of the as-built drawings and documents. These activities will be carried out mainly with the document management system that the OE will develop and implement in the Project execution. A Table of Records to be prepared and/or maintained by the Owner's Engineer in performing the engineering assistance activities is shown in clause 2.2.4 below.

➤ **Changes in construction**

The OE examines the technical content of the claims of the Contractor for the EPC for contractual variations/changes to the Terms of Reference of the Contractors of the EPC specified in the Construction Agreement – the OE will provide full assistance to the Contracting Authority in managing the changes in the Construction Contract. In the event that changes to the approved projects and / or part of the work to be performed are required, the work/design / work to be replaced will be submitted for approval to the Contracting Authority, stating the reasons for this , and indicate what they will be replaced. The OE experts will assess the change that has been made and the impact it will have on the cost and timing of the Project. When carrying out the assessment, if necessary, we will measure the work that has occurred and we will take appropriate action to identify and negotiate unit prices for the works with the EPC Contractor. Prior to issuing a Change Order to the EPC Contractor, the OE will require written approval from the Contracting Authority. The change procedure will follow strictly the provisions of the contract. It should be remembered that any change in the approved drawings should be agreed prior to its implementation and by the Design Author, who remains responsible for the project as indicated in the Contracting authority's assignment to this tender. The OE will monitor the changes in the project to be agreed by the Design Author. We believe that with this good engineering practice, the Project will be implemented within the indicative program and within the planned budget.

➤ **Other results from OE**

The OE develops and submits to the Contracting Authority reports and other documentation that may be requested by the Contracting Authority on various technical and commercial issues related to the Project and within the knowledge of the OE - OE experts, if necessary, will prepare and submit to the Contracting Authority any reports and/or accompanying documentation that may be requested by the Contracting Authority in the event of the occurrence of various technical and commercial matters relating to the Project. The content and format of the reports will be agreed in advance between the parties in order to meet the needs of the Contracting Authority.

➤ **Value-Functional Analysis**

During the whole project development period, the OE draws up value-functional analyzes to identify and resolve factors that can lead to increased costs or efforts in the design, construction and operation of the Project. OE uses up-to-date technologies, knowledge and skills to effectively identify costs or efforts that do not positively contribute to optimal performance. Value-Functional

Analysis is carried out jointly by the OE (on behalf of the Contracting authority) and the Contractor of the EPC - throughout the development period of the detailed design, the OE experts together with the EPC Contractor's Design Team will produce value-functional analyzes to identify and resolve factors that may lead to increased costs or effort in the design, construction and operation of the Project. To carry out these activities, experts will use proven engineering practices to recognize such design solutions that may lead to increased project costs. In addition, the OE teams and the EPC Contractor will use advanced technologies and knowledge gained through their long experience in such projects to identify costs or efforts that do not positively contribute to optimal performance.

➤ **Safety inspections**

The OE monitors the development of plans for the timely and systematic organization of safety audits during the design, construction and commissioning of the Project and attends such inspections on behalf of the Contracting Authority to ensure that the approved procedures are duly followed and implemented for the Bulgarian section taking into account Article 186, paragraph 1, point 4 of the SDA - during the design, construction and commissioning of the Project, the Head of the Safety and Health Information System will review the plans developed by the Contractor and will assess their compliance with the requirements of the Contracting Authority and the regulatory requirements. If there is a discrepancy, it will indicate the extent to which they do not meet the contract documents, and will require and track their correction.

The Consultant will review the Safety Management Systems presented by the EPC. The latter will be assessed for compliance with the applicable regulatory documents, the requirements of the Contracting Authority and the detailed work program submitted by the Contractor for the EPC. During the construction phase, the Head of the Safety and Health Commission will carry out regular checks on safety systems. When omissions, it will issue a statement, which will indicate the extent to which they satisfy the requirements of the contract documents, and will require the Contractor to the EPC safety systems to be brought in impeccable form.

The OE will control measures to ensure healthy and safe working conditions on the construction site. Construction site safety will be on the agenda of each meeting on the construction site and will record all instances of injury and instances of avoidable accidents at all construction sites. At each meeting, the safety documentation for the previous period will be discussed and the construction planned for the next period will be discussed with a view to implementing all the techniques to minimize safety risks.

Our staff will be trained on health and safety at the site and will strictly monitor violations of the law on labor, which will be communicated to the Contractor of EPC for immediate removal. Health and safety at work are the highest priority for the Consultant of the project. It is considered to be of the greatest benefit to all parties not to allow accidents at the sites. Measures will be taken to predict all risks to work safety and the EPC Contractor's program to minimize risk for the relevant construction or commissioning activities will be reviewed in advance.

➤ **Reports on the completion/acceptance by the Contractor of the EPC**

OE ensure the preparation and presentation of reports on the completion/handover by the Contractor of EPC by specifying the required content, review and verification of reports by the Contractor of EPC for Admission to Employment - experts OE will require and track contractor of EPC to prepare and submit reports on completion/acceptance of works. The format and content of the reports will be pre-approved by the OE 's experts. The project manager will assess the compliance of the reports with the Contracting Authority Requirements and the Contract Documents. If there is a discrepancy, it will indicate the extent to which they are not responding, requiring and tracking their correction. In addition, OE 's experts will carry out a series of site inspections to confirm that the work underlying the EPC Contractor's reports has been completed, tested and operational.

A recommendation from the OE for the acceptance of the works by the Contracting Authority under the Construction Agreement will be added to the Contracts of the EPC Contractor and this recommendation will be supported by detailed arguments, reports, records and opinions. The OE is fully aware that these reports and recommendations are advisory on the actions of the Contracting Authority for the adoption of the EPC.

❖ **Engineering Control and Design Supervision During the Work Design Stage:**

The OE will monitor on behalf of the Contracting Authority whether the engineering and design activities are carried out by the Contractor of the EPC in accordance with the Construction Contract (including its annexes containing the technical design for Bulgarian territory and FEED for Greek territory).

The designer will continue to be responsible for project integrity and will not be released from this responsibility.

The OE, as stated in the Construction Agreement, will review the FEED project for the Greek section and the technical design for the Bulgarian section annexed to the Construction Contract and the approved design review report.

The OE will confirm to the Contracting Authority that the pipeline system has been designed in accordance with the Project Specifications that the work design is sufficient and appropriate for that purpose and that the gas pipeline system can operate in accordance with the performance guarantees specified in the relevant project contracts. Services related to engineering and design supervision will briefly include the following activities:

- Review and approve all engineering results obtained by designers to ensure progress and compliance with relevant contract documents/requirements. In general, the OE will review all engineering documents when provided to the Contracting Authority;
- Review of design process design, P&ID diagrams, drawings and classification of hazardous areas;
- Review of design by developers with respect to the Critical Main Elements of the Equipment, including attendance of meetings with Suppliers/Manufacturers;
- Answering technical questions from designers;
- Participation with designers at HAZOP meetings and so on, as specified in the design contracts;
- Review the technical content of claims for changes to the technical requirements specified in the Contractor's Terms of Service.

The contractor of the EPC will provide for approval by the Contracting Authority detailed designs on all parts, according to the requirements of the Contracting Authority.

The Owner's Engineer, through its team, will monitor whether the work designs are in compliance with the Contracting Authority's Requirements, the requirements of the Linear Pipeline Supply and Construction Contracts and Good Engineering Practices. As regards the completeness, the requirements of the Contracting Authority and the requirements of the Bulgarian and Greek legislation should be met. All project developments - reports, notes, and drawings will be reviewed by the relevant OE expert.

The chief expert in the Owner's Engineer team responsible for the control of the design documentation is the Engineering Design Manager. He will be directly subordinate to the Project Manager and will coordinate a team of experts who will review the work projects prepared and comment on the extent to which these documents are in line with the requirements of the Treaty.

ANQ

Immediately after submission of the work design by the Contractor, the Consultant will mobilize the necessary expert staff to review the submitted documentation.

Point 2.2.4 of this section in present document, details the specialists who will be responsible for the review of the detailed design. The Consultant will provide comments on the extent to which investment projects submitted by the Contractor do not comply with the Design Rules and the requirements of the Contracting Authority.

The audit will represent a comprehensive overview of the work projects and its main purpose is to confirm that the project development meets the requirements of the regulatory and requirements of the Contracting Authority. The results of the review of the work projects by the OE team will be summarized in the appropriate forms (presented in the Project Implementation Plan) and will be sent to the Contracting Authority and the Contractor of the EPC, including, where applicable, the Consultant's statement on the document, as well as recommendations for action. The Contracting authority and the Consultant may also request additional, supportive information to the project documents they are considering, to be submitted by the Immigration Contractor immediately.

If, following the Consultant's advice on work projects, responses are given to the Contractor for the comments made, the Consultant will carefully review the same and, if necessary, cause a deliberate meeting between his team and the Design Team to clarify the cases that have arisen .

In any case, the Consultant's team will require that the design documentation be prepared in accordance with the requirements of the Contracting Authority, the requirements of the Contract for Construction and Delivery of Linear Pipes and Good Engineering Practices. If, however, a situation arises in which no consensus can be reached on a given matter, it will be submitted to the Contracting Authority for an agreement.

The Contracting Authority will notify the Contractor of the EPC of the outcome of the examination of the Contractor's Document. Prior to issuing the statement from the examination of the design documents, the Contracting authority and the Consultant may request clarifications and consultations with the Contractor of the EPC.

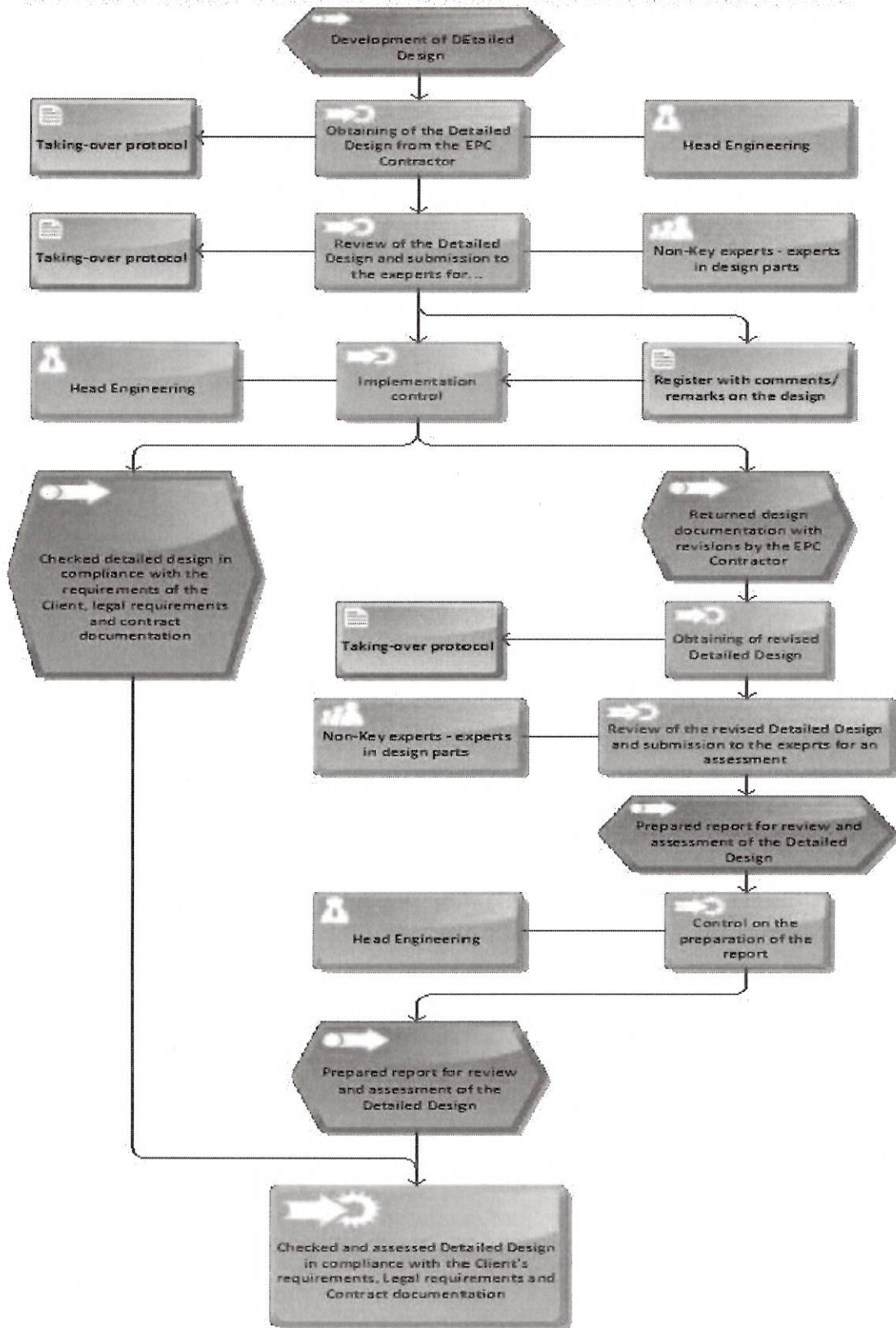
The Owner's Engineer will develop a Working Draft Review and Assessment Procedure which will determine the rules and obligations for the assessment of the compliance of the design work with the Contracting Authority's Requirements and the Construction Contract (including its annexes containing the technical design for the Bulgarian territory and FEED for Greek territory). The procedure includes the development of the following registers and templates to be managed by the Engineering Design Manager:

- Forms for the documents provided by the participants - 5 entities. (Contracting Authority, EPC Contractor, Owner's Engineer, Construction Supervision, Author's Supervision);
- Form for comments on project documentation;
- Declaration template;
- Forms for conformity assessment of work projects;
- Register of documents for the participants in the construction;
- Project Documentation Register;
- Work project evaluation register.

Below we have shown a procedure for checking and evaluating work design:



**PROCEDURE FOR REVIEW AND ASSESSMENT OF THE DETAILED DESIGN**



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❖ **Engineering control and design during the Stage of Deliveries by the EPC Contractor:**

➤ **General information**

The OE will supervise during the procurement phase of the EPC Contractor and its contractors regarding the compliance with the project objectives and the technical requirements set out in the Construction Agreement.

For this reason, OE experts will monitor the design verification process that will be performed by the EPC Contractor, participate in testing and inspections of the vendor as necessary, and perform quality and safety audits at the subcontractor's premises.

The OE experts will monitor the entire procedure from the choice of Supplier to the final test and inspection. For critical equipment and materials, OE experts will monitor and ensure that special quality requirements are developed and implemented throughout the procurement and procurement process.

In the process of contracting contractors and subcontractors with the Contractor and subcontractors, the OE's experts will exercise direct control (without interfering with the Contractor's performance of its obligations) to ensure that these contractors and subcontractors will deliver and/or execute the activities assigned to them according to the requirements of the Contracting Authority's requirements and the contract documents (technical specifications, detailed design, technical design, etc.).

➤ **Identification of basic equipment and monitoring of its planning**

OE Experts will identify the key elements of critical equipment that have a long lead time, intense development requirements, high cost, sophisticated technology, high pressure and difficult logistics requirements.

The OE understands that performance of this activity is particularly important for the implementation of the Project so that it is implemented within the timeframe foreseen in the indicative program and within the planned budget. For this reason, OE experts will do their utmost to identify critical equipment. This equipment will be placed in a special register, with its production, specific requirements and logistics on delivery on the construction site being monitored weekly by the Engineering Design Manager and the Head of the QA/QC and material inspection. With this good practice, the OE believes that it will minimize the risk of delay in the production and delivery of the core equipment of the project.

For the rest of the equipment, the OE will follow the development of specifications and check for the compliance of the equipment in question with the project specifications. In the event of inconsistencies, OE experts will require the EPC Contractor to bring the equipment up to the requirements of the Contract Documents.

These activities will be carried out mainly with the document management system that the OE will develop and implement in the implementation of the Project. A Table of Records to be prepared and/or maintained by the Owner's Engineer in performing the engineering assistance activities is shown in clause 2.2.4 below.

➤ **Technical evaluation of proposals/quotations**

For the items and equipment supplied by the EPC Contractor, the OE monitors and verifies that purchases of basic and/or critical items of equipment are satisfactory and in accordance with the Project Agreement, Project Specifications and Requirements (also considering that the Bulgarian Construction Supervision Company should apply Article 169b of the SDA).

In the process of contracting contractors and subcontractors with the Contractor and subcontractors, the OE's experts will exercise direct control (without interfering with the

Contractor's performance of its obligations) to ensure that these contractors and subcontractors will deliver and / or execute the activities assigned to them according to the Contracting Authority's requirements and the contract documents (technical specifications, design, technical design, etc.).

With this good practice, the OE believes that it will minimize the risk of delay in the production and delivery of the main equipment of the project.

➤ **Suppliers data**

The EPC Contractor responsible for the design work will be responsible for receiving data on the Supplier in a timely manner to avoid delay in the timing of the milestones of the Project. The OE will follow this process to ensure that the Project is implemented within the indicative program and within the planned budget.

The OE will not validate any of the drawings provided by the EPC Contractor on behalf of the Contracting Authority as "approved for construction" if it is incomplete due to lack of supplier data or otherwise. Such drawings will be treated as suspended design documents and will be dealt with under the document suspension procedure. The OE will make reasonable efforts to help the EPC Contractor to obtain the necessary data for the supplier, but this will not release the Contractor from his obligations in this regard.

All endorsements that will be made by the OE's experts on the status of accepting documents from the work draft will be entirely for the Contracting Authority's needs with a view to accepting the work of the Contractor for the EPC. These activities are irrelevant and do not override the legal obligations of the other participants in the construction process with control / supervisory / inspection functions under the Territorial Planning Act for the Bulgarian territory.

In order to monitor the performance of the Contractor and its Suppliers, the OE will review the Contractor's drawings and the Contractor's EPC comments on them regarding major equipment components as well as some other items of equipment for the Contracting Authority. When reviewing these drawings, the Workflow Review and Assessment Process described above will be followed. In this regard, the Consultant's experts will require the Supplier's drawings to be brought into conformity with the requirements of the Contracting Authority, the requirements of the Contract for Construction and Delivery of Linear Pipes and Good Engineering Practices. If, however, a situation arises in which no consensus can be reached on a given matter, it will be submitted to the Contracting Authority for an agreement.

The OE ensures that the requirements of the Contract Documents will be included in all Subcontracting and Suppliers' Agreements to confirm that Supplier data has been submitted in due time to receive delays in the timing of the milestones of the Project.

❖ **Overview of Engineering Activities and Design during the Construction Stage:**

In the planning of construction, the OE will review the Contractor's activities for the construction and related development projects and will ensure that they comply with the general requirements of the Project. This will include:

- Review of the Schedule and Construction Scheme prepared by the EPC Contractor - The Project Management Services Manager and Construction Supervisor will review the construction schedule and scheme prepared by the EPC Contractor and assess their compliance with the Contracting Authority's requirements, the projections of the construction contract and good engineering practices. If there is a discrepancy, they will indicate the extent to which they do not meet the contract documents. Prior to approving these documents, the Project Management Services Manager and the Construction Supervisor will require and confirm that the EPC Contractor has removed all reported comments and omissions in the documents;
- Review of Personnel Buildings and Resource Mobilization Builder-Managed Project Bodies - The Project Management Services Manager and the Construction Supervisor will review

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the staff construction and resource mobilization documents prepared by the EPC Contractor, and will assess their compliance with the requirements of the Contracting Authority, the provisions of the Construction Contract and good engineering practices. If there is a discrepancy, they will indicate the extent to which they do not meet the contract documents. Prior to approving these documents, the Project Management Services Manager and the Construction Supervisor will require and confirm that the EPC Contractor has removed all reported comments and on EPC ions in the documents;

- Review of subcontracting subcontractors 'subcontracts, subcontractors' documents - terms, conditions and schedules - The project management services manager and the Construction Supervisor will review the outsourcing plans prepared by the Contractor subcontracting and subcontracting, and will assess their compliance with the Contracting Authority's requirements, construction contract provisions and good engineering practices and If there is a discrepancy, they will indicate the extent to which they do not meet the contract documents. Before approving these plans and documents, the Project Management Services Manager and the Construction Supervisor will require and confirm that the EPC Contractor has removed all the specified comments and omissions in the documents;
- Review and recommendation for approval of subcontractor changes proposed by the EPC Contractor if they are relevant to the Project - the Project Management Service Manager and the Construction Supervisor will review all requests from the Contractor for the EPC for subcontracting changes. The OE experts will require detailed information on the qualifications, experience and capabilities of the proposed subcontractors. On the basis of these documents, the OE experts will assess the capabilities of the proposed subcontractors and will submit a recommendation to the Contracting Authority to approve or disapprove of these subcontractors;
- Review and Modification of the Temporary Lifting and Transport Program for Temporary Lifting and Transport of Heavy Goods Equipment and Equipment, including related studies - The Construction Supervisor will review the program for temporary lifting and lifting equipment developed by the Contractor heavy goods transport, and will assess the compliance and the requirements of the Contracting Authority, the provisions of the Construction Contract and good engineering practices. If there is a discrepancy, it will indicate the extent to which it does not meet the contractual documents. Prior to approving the program, the Construction Supervisor will request and confirm that the EPC Contractor has removed all the specified comments and omissions in the documents;
- Ensuring coordination between all actors working on the site and their relationship with state/local authorities and other relevant organizations - the OE will organize, manage and record monthly coordination meetings between both the Contractors of the project contracts and between them and any outside institutions, if necessary. At these meetings will be invited to attend the Contracting authority. A copy of the minutes will be sent for information to the Contracting Authority within 5 working days from the date of the coordination meeting. The OE immediately notifies the Contracting Authority in the event of conflict situations. The purpose of these meetings is to avoid conflicts at the touch points of this project with networks and facilities of stakeholders. Minutes of meeting will be distributed within 5 days after the end of the meeting

After the acquaintance with all the available documentation submitted by the Contracting Authority, including the designs submitted by the Contractor of the EPC, the Consultant will advise the Contracting Authority on the need for any additional documents - permits, statements, agreements and approvals from control bodies, operating companies, municipal authorities, and others which are mandatory or recommendable for the lawful commencement of the construction and/or setting the construction into operation. The Consultant will assist the Contracting Authority and the Contractor in the procurement of these additional documents. The Consultant will monitor how the requirements of the outsourced authorities and organizations are reflected in the project and will assist the Contracting Authority in approving the project by these organizations.

- Review and approval of the Quality Control and Quality Assurance Contractors' Plans and Procedures - The Head of QMS will review the Quality Control and Quality Assurance Plans and Procedures prepared by the Contractor and will assess their compliance with the Contracting Authority's requirements, the construction contract and good engineering practices. If there is a discrepancy, it will indicate the extent to which they do not meet the contract documents. Before approving Quality Control and Quality Assurance Plans and Procedures, the QMS Manager will request and confirm that the EPC Contractor has removed all the specified comments and omissions in the documents.

During the construction phase, the manager of the QMS will carry out regular inspections of the quality control and quality assurance procedures. If deficiencies are found, it will prepare an opinion indicating the extent to which they do not meet the requirements of the contract documents and will require the EPC Contractor to have the quality control and quality assurance procedures

- Reviewing and approving the implementation of the safety and control procedures of the construction site of the EPC - OE Contractor will review the Safety Management Systems presented by the Contractor. The latter will be assessed for compliance with the applicable regulatory documents, the requirements of the Contracting Authority and the detailed work program submitted by the Contractor for the EPC. During the construction phase, the Head of HSSE will carry out regular checks on safety systems. In the event of deficiencies, it will issue a statement indicating the extent to which they do not meet the requirements of the contract documents and will require the Contractor of the EPC to be brought into the correct form;
- Review and approval of the Project Implementing Plans of the EPC Contractor - The Project Management Service Manager will review the Project Implementing Plan executed by the Contractor and will assess its compliance with the Contracting Authority's requirements, and good engineering practices. If there is a discrepancy, it will indicate the extent to which it does not meet the contract documents. Before approving the Project Implementation Plan, the Project Management Service Manager will request and confirm that the EPC Contractor has removed all the specified comments and omissions in the document;
- Review and Verification for the Contracting authority's needs of the final technical documentation (As-built Drawings) - During the construction phase and after the actual completion of the construction, the OE experts will require the Contractor to draw up executive drawings for the non-essential deviations from the approved designs. The experts of the OE will control the drawing up of the executive drawings, will verify their correctness, their technical development, according to the requirements of the Contract Documents. Control of the executive drawings will be performed by the Head of Engineering Design and non-key experts on the relevant design parts. We believe that with this good engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget.

❖ **Other activities at the discretion of the Participant:**

We believe that with the following good engineering practices, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget:

➤ **Mobilization of Researcher's Resources:**

The Owner's Engineer will be mobilized immediately upon receipt of the written notice from the Contracting Authority to commence the performance of the contract. An organization will be set up to prepare the Project Implementation Plan, specify the procedures, communication channels and technical prerequisites for the normal functioning of our offices, the team and the successful start of the works. The consultant will organize and finance all the activities necessary for the successful execution of the contract - the office's occupation of the project, office logistics, transportation for

the needs of its personnel, office equipment, communication equipment, measuring instruments, etc.

➤ **Review and approve/reject the detailed work program of the EPC Contractor and the Linear Pipe Supplier:**

The Owner's Engineer will review the detailed program of the EPC Contractor and the Linear Pipe Supplier. Particular attention will be paid to the following:

- Is the level of detail required to facilitate targeted monitoring of progress;
- the adequacy of the time allocation for the different types of activities;
- whether the sequence of design and construction activities is logical and realistic;
- compliance with the provisions of the Construction Contract and the Contract for the Linear Pipes Supply;
- the overall timeframe for the execution of the works, the technological sequence of the works and the necessary completion dates;
- the timeframe for construction of each of the structures on the site and the installations assembly;
- Schedule for delivery of materials and installation of equipment;
- test dates/dates;
- Critical activities to implement the contract on time.

The OE will review and comment on the work program of the EPC Contractor and the Linear Pipe Supplier and will make sure that they meet the technological sequence of the construction and the requirements of the contracts. After the review, the Consultant will prepare and submit its opinion on the submitted documents.

➤ **Organize and conduct at least once a month, work meetings at the site for monitoring the course of construction works and once a month for project management with the team leader and the key experts of the Construction Contract and the Contract for the Linear Pipes Supply.**

The Contracting authority will be invited to attend each of these meetings. The consultant will prepare the minutes and any other notes. Dates for forthcoming meetings will be communicated to the Contracting Authority and the Contractor at the latest 5 working days in advance, and an agenda will be sent to them. Within 5 working days after each of the meetings, the OE will prepare and send by e-mail reconciliation minutes of meeting to the Contracting Authority and the Contractor of the EPC. If no comments or remarks are received within 5 working days, the record is deemed to have been approved and the Consultant will send it by letter to the parties for signature.

Regular monthly meetings for progress enable to anticipate and prevent problems and delays. The OE will convene and conduct monthly meetings to monitor the course of construction work. It will draw up the minutes of these meetings and send them to the stakeholders. These meetings will also be a means of identifying delays in the overall timetable and reviewing the measures proposed by the EPC Contractor to overcome them. The Consultant will be present at the monthly meetings with representatives of the Contracting Authority, the Contractor, the Linear Pipe Supplier and other involved parties. Prior to these meetings, the EPC Contractor's reports will be distributed to the participants. The agenda of monthly meetings will include:

- Questions from a previous meeting;
- Progress of work;
- Consultant's progress report, including possible delays;

- Quality of the work done;
- Compliance with the requirements for health and safety at work;
- Payments;
- Others;
- Next meeting.

The measures assigned to the EPC Contractor with the minutes of the meeting will be considered as instructions under the contract. The minutes of the meetings will be distributed within 5 days of the meeting.

➤ **Organizing and conducting workshops on the initiative of one of the main participants in the project implementation process.**

The Contracting authority and the parties concerned will be invited to attend each of these meetings. The consultant will prepare the minutes and any other notes. Dates for forthcoming meetings will be communicated to the Contracting Authority and the parties concerned at the latest 2 working days in advance, and an agenda will be sent to them. Within 5 working days after each meeting, the OE will prepare and send an e-mail reconciliation protocol to the Contracting Authority and the parties concerned. If no comments or remarks are received within 5 business days, the minutes will be deemed to have been approved and the OE will send it with an official letter to the parties for signature. The Consultant will participate, manage and record meetings on the initiative of one of the main participants in the process. These meetings will discuss urgent issues and issues requiring immediate intervention and appropriate resolution. The minutes of the meetings will be distributed within 5 days of the meeting.

➤ **Assistance to obtain concordances and opinions from external institutions when their facilities or systems are affected by the construction.**

The Consultant will assist the Contracting Authority and the Contractor to perform the procedures for issuing the necessary written submissions from the specialized control bodies, the contracts with the exploitation companies for joining the technical infrastructure networks when their facilities are affected by the construction activities. It will monitor whether the work plan developed reflects the requirements described in the opinions of these companies. Will assist in obtaining approval for these projects. Prior to commissioning, the Consultant will ensure that all affected facilities are recovered and tested and all the requirements of the operating companies are met.

➤ **Provide logistical support to the Contracting Authority, including without limitation: full technical, administrative and management support such as preparation of references, reports, statements, etc., related to audit and other inspections, etc.**

The Consultant will provide full technical, administrative and management support to the Contracting Authority throughout the project period. When audits or other revisions are carried out by funding institutions or control bodies, each of the Consultant's team will be available and, if necessary, references, reports or statements will be prepared as soon as possible. Representative of the Consultant will organize and attend any extraordinary meetings, depending on the reason for such meetings and according to its competencies.

➤ **Assist the Contracting authority regarding the coordination with the owners of the utilities, the municipal authorities, the road administration and others. outsourced bodies and organizations.**

Upon acquaintance with all available documentation submitted by the Contracting Authority, including the documents submitted by the Contractor, the Consultant will advise the Contracting Authority on the need for any additional procedures - authorizations, statements, approvals and coordinations by control bodies, operating companies, municipal authorities, others that are mandatory or recommended for the lawful commencement of the construction and / or

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commissioning the construction. The OE will assist the Contracting Authority and the EPC Contractor when purchasing these additional documents. The Consultant will monitor how the requirements of outsourced bodies and organizations are reflected in the work project and will assist the Contracting Authority and the Contractor for the EPC when approving the project by these organizations.

- **Controlling the process of preparing the EPC Contractor for all documents, drawings and materials related to the expropriations necessary for the execution of the construction.**

The Consultant will strictly supervise the process of preparing all documents, drawings and materials related to the alienations necessary to complete the construction. For landed properties located in agricultural and forest areas falling within the scope of the project with the detailed development plans prepared, a change of the purpose of the land should be envisaged under the order of the Agricultural Land Protection Act and the Forestry Act.

The expropriation of the lands necessary for the realization of the project will be alienated after a change of the purpose of the land by the order of the State Property Act.

The Consultant will check for correctness, reconciliation and approve all documents relating to alienation procedures and submit them for approval to the Contracting Authority.

- **Throughout the duration of the project implementation, it will notify the Contracting Authority of all actions, decisions or approvals it deems necessary and appropriate to speed up project implementation and maintain control of costs:**

The Consultant will monitor the progress of the Works weekly by conducting weekly meetings with the staff of the EPC Contractor and the Linear Pipeline Supplier to comment on progress over the past week as well as a work plan for the forthcoming week. The Engineer will promptly inform the Contracting Authority of possible problems that may affect the achievement of the project's objectives. In addition, it shall notify the Contracting Authority of any action, decision or approval it deems necessary and appropriate for the timely implementation of the project and maintenance of the cost control.

The services provided by the OE will be implemented in two phases:

- Phase 1 - Services during the tender phase of the Project, before construction commencement;
- Phase 2 - Services during the construction phase of the Project.

Engineering assistance activities fall into both phases of the project.

For the purpose of more accurately presenting the timely implementation of the Engineering Assistance Activities, we have shown below the individual activities in line with the key dates of the Indicative Program of the Project. The sequencing and co-ordination, which ensure the performance of individual tasks within the Engineering Assistance Activities, are specified.

The timeframe for execution is defined according to the Contracting Authority's requirements for the project deadlines, but the design and construction stages and other key dates will be determined in part by the EPC Contractor and the Linear Pipe Supplier by making forecasts based on our previous experience and the information in the documentation for participation. Following the launch of the EPC and Linear Pipe Supply, the deadlines in the table below will be updated by the OE in the Project Timeline prepared by it.

**Table: Sequence of performance of activities**

Sequence of activities and tasks to be performed by the Owner's Engineer (OE)	Indicative duration of activity	dates/ of each activity
Engineering Assistance		

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Building permission for the territory of Bulgaria	issued in the 3rd quarter of 2017
Overview of Engineering Assistance Services - Phase 1 - during the tender phase of the Project, before the start of construction	
Detailed review of the existing technical documentation provided by the Contracting Authority - the engineering and design documentation (FEED) and the technical design	<b>Phase 1 - during the tender phase of the Project, before commencing construction</b> <b>1st and 2nd quarter of 2018</b>
Detailed review of documents and reports prepared after the FEED and the technical design until the award of the Construction Contract and the contract of the Linear Pipeline Supplier, including a review of the detailed design carried out by ICC JSC and its shareholders IGI Poseidon and BEH	
Review and comment on the documentation of the EPC Contractor	
View and comment on the documentation of the Linear Pipe Supplier ensuring that it is in compliance with the specification	
Signing of the Contract for the Linear Pipes Supply	
Signing a Construction Contract	<b>2nd quarter of 2018</b>
Building Permit on the territory of Greece	<b>2nd quarter of 2018</b>
Start of construction	<b>The end of the second quarter of 2018</b>
Overview of Engineering Assistance Services - Phase 2 - during the construction phase of the Project	
Review and comment on the documentation of the EPC Contractor	<b>From the beginning of the construction until the date of the last of the two EPC ue of the permit for use for the Bulgarian section or authorization of operation for the Greek section</b>
View and comment on the documentation of the Linear Pipe Supplier ensuring that it is in compliance with the specification	
Review and Acceptance of Work Design by the Contractor on behalf of the Contracting Authority	
Review and supervision of the Contractor's EPC procurement activities related to design decisions	
Engineering assistance and control during the design process during the construction phase	
Review and Verification of Final Technical Documentation (as-built) Drawings for the Contracting Authority	
Monitoring the status of documents by using a database to monitor information and report on progress	
In the case of requests for change/contractual variations, review of the proposals and evaluation of contractual options from a technical and commercial point of view for the needs of the Contractor	
<b>Review, comments, and approval of technical performance by Contractors (EPC and Pipe Supplier)</b>	
Verification of accuracy, completeness, format and content for the Contracting Authority's needs	<b>Phase 2 - during the construction phase of</b>

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	the Project
<b>Technical issues and deviations</b>	
Ensuring that all technical issues and answers to them are submitted in writing	
Analyzes any technical inquiry and, where appropriate, proposes a solution of the Contracting Authority or gives instructions to the Designer concerned from the Contracting Authority	
Providing timely responses, as agreed by the contractor of the EPC	<b>Phase 2 - during the construction phase of the Project</b>
<b>Stop control</b>	<b>Phase 2 - during the construction phase of the Project</b>
Ensures proper management of suspension of project design results by the EPC Contractor	
Monitor permissions for all stops until finalized status is reached	
<b>Numbering of equipment and data archives</b>	
Monitor the development of appropriate procedures for equipment numbering by the EPC Contractor	<b>Phase 2 - during the construction phase of the Project</b>
Tracking Indexing, Layout, Printing and Binding of Equipment Records	
<b>Document Control Registers and Final Drawings</b>	
It monitors the development and approves the control records of the documents submitted by the EPC Contractor	<b>Phase 2 - during the construction phase of the Project</b>
Ensures on behalf of the Contracting authority the correct recording and archiving of the technical results until the moment when the executive drawings and documents are transmitted	
<b>Changes in construction</b>	
Views the technical content of the Contractor's claims of the EPC for contractual variations / modifications to the Terms of Service of the Contractors of the EPC specified in the Construction Agreement	<b>Phase 2 - during the construction phase of the Project</b>
<b>Other OE results</b>	
Production of reports and other documentation at the request of the Contracting Authority	<b>Phase 1 and Phase 2 of the project</b>
<b>Value - functional analysis</b>	
Preparation of value-functional analyzes to identify and resolve factors that may lead to increased costs or efforts in the design, construction and operation of the Project	<b>Phase 1 and Phase 2 of the project</b>
<b>Safety inspections</b>	
Monitor the development of plans for the timely and systematic organization of safety checks during the design, construction and commissioning of the Project	<b>Phase 2 - during the construction phase of the Project</b>
Presence of such inspections on behalf of the Contracting Authority to ensure that the approved procedures are duly followed and implemented	

<b>Reports on Ending/Acceptance by the Contractor to the EPC</b>	
Ensures the preparation and submission of reports on the completion/acceptance by the Contractor of the EPC by identifying the necessary content, reviewing and verifying the reports by the Contractor of the EPC for the acceptance of the works	<b>First half of 2020</b>
Inclusion of a recommendation for acceptance under the Construction Contract by the Contracting Authority and indication of the records in support of such recommendation	
<b>Supervision of engineering and design during the design phase</b>	
Observes on behalf of the Contracting Authority whether the engineering and design activities are carried out by the Contractor of the EPC in accordance with the Construction Contract	<b>From the signing of the Contract for the Supply of Linear Pipes and the Construction Contract to the beginning of the pipeline deliveries and the beginning of the construction activities</b>
Review and approve to the Contracting Authority all engineering results obtained by the designers to ensure progress and compliance with the relevant contractual documents/requirements. In general, the OE will review all engineering documents when provided to the Contracting Authority	
Review of Process Design Charts, P&ID Diagrams, Drawings, and Classification of Hazardous Areas	
Design review by designers with regard to the Critical Main Elements of the Equipment, including attending meetings with Suppliers/Manufacturers if necessary	
Answering technical questions from designers	
Participation with designers at HAZOP, etc., as specified in the design contracts on behalf of the Contracting Authority	
Review Technical Content Claims for Changes in Technical Requirements Specified in the Contractor's Terms of Service for the Contracting Authority's Requirements	
<b>Supervision of engineering and design during the procurement phase of the EPC Contractor</b>	
Surveillance during the procurement phase of the Contractor and its contractors in terms of compliance with the project objectives and the technical requirements specified in the Construction Agreement	<b>From the signing of the Contract for the Supply of Linear Pipes and the Construction Contract to the beginning of the pipeline deliveries and the beginning of the construction activities</b>
Identification of basic equipment and monitoring of its planning	
Technical evaluation of proposals/quotations	
Suppliers data	
<b>Supervision of engineering and design during the construction phase</b>	
Review of the schedule and construction scheme prepared by the EPC Contractor	<b>From the signing of the Contract for the</b>

Review of human resources construction and resource mobilization documents prepared by the EPC Contractor	<b>Supply of Linear Pipes and the Construction Contract to the beginning of the pipeline deliveries and the beginning of the construction activities</b>
Review of Contractor's Subcontracting Subcontracting Plans by the Contractor - Terms, Conditions and Schedules	
Review and recommendation to approve sub-contractor changes proposed by the EPC Contractor whether they are relevant to the Project	
Review and modification of the program for temporary equipment and equipment for lifting and transporting heavy goods, including related studies	
Ensuring coordination between all actors working on the site and their relationship with state / local authorities and other relevant organizations	
Review and approval of the Quality Control and Quality Assurance Contractor's Plans and Procedures	
Review and approval of the implementation of the safety and control procedures on the construction site of the EPC Contractor	
Review and approval of the project implementation plan for the EPC Contractor	
Review and Verify for the Contracting Authority's needs the final technical documentation (As-built Drawings)	
<b>Obtaining permission for use for the Bulgarian section</b>	<b>First half of 2020</b>
<b>Obtaining a Operating License for the Greek section</b>	<b>First half of 2020</b>
<b>Issuance of a Pipeline Operational Certificate</b>	<b>First half of 2020</b>
<b>Date of commercial exploitation</b>	<b>First half of 2020</b>

### 2.2.2. Risks and measures to reduce them

The Contracting Authority has identified the following risks in the Simplified Risk Matrix threatening the successful implementation of the Engineering Assistance Activities:

- Technological / design / hidden deficiency of construction activities or materials;
- Problems with land acquisition (delays in acquisition, limitation of rights);
- Complaints against decisions to award an EPC contract or a contract for the supply of linear pipes.

#### ❖ **A way to overcome the risks**

The way to overcome the risks, their classification is described in subsection 1.2. of this proposal.

Below is a structured description of the management measures for each of the risks identified by the Contracting authority which may affect the engineering assistance activities.

#### ❖ **Risk management measures**

#### **Risk: Technological / design / hidden deficiency of construction activities or materials**

##### **a) Description of the causes**

It is possible that during the execution of the construction a design deficiency of construction works or materials will occur which will prevent the envisaged results of the project from being achieved.

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The reasons may lie in a defect in the drawings and specifications, late reporting of a problem, untimely intervention by a design team, delays in providing a revised design solution.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The impact is both on the duration of the project and on its value.

**Probability:** rare.

**Impact:** Average.

**Classification:** low risk.

**c) When the risk is likely to occur**

In the stage of the working design, as well as during the execution of the construction.

**d) Description of possible measures (avoidance, retention, reduction, transfer)**

The main measure to mitigate the impact of this risk is a detailed review that the OE team will carry out on the existing technical documentation provided by the Contracting Authority - the FEED and Technical Design documentation, the review will conclude with a report containing comments and possible omissions in the prepared documents. The OE will request and track all comments and omissions in the prepared documents to be reflected and corrected during the design phase of the EPC Contractor.

If, however, a similar problem arises during the execution of the construction works, the OE will undertake complete management of the defect notification process, the intervention of the respective design team (the Contractor of the EPC, the Authorization Supervisor of the Technical Design in Bulgaria, the Author of the Front End Engineering Design (FEED) documentation in Greece) and the timely presentation of a revised design solution so as to minimize the impact on the project implementation timeframe or on its value.

**e) Party bearing the consequences of the risk**

Contracting Authority, Owner's Engineer.

**f) Party responsible for risk management**

Mainly the Owner's Engineer team with the assistance of the design team of the Contractor of the EPC, the Author Supervision of the Technical Project in Bulgaria, the Author of the Documentation for General Engineering and Design (FEED) in Greece.

**Risk: Land acquisition issues (delays in acquisition, limitation of rights)**

**a) Description of the causes**

The reasons for this risk are the lack of coordination and effective cooperation between stakeholders in the project. The underlying causes may be many and varied in their origin, nature and purpose:

- Lack of clearly defined goals;
- Lack of resource provision;
- Lack of adequate environment;
- Lack of appropriate tools;
- Lack of motivation;
- Others.

Weaknesses in this direction are expressed by intentions, actions or inactions of one of the participants in the land acquisition process that are not in sync at time, place and / or resources with the development, progress and status of the other participants and/or of the whole project.

The risk is directly proportional to the number of participants and inversely proportional to the experience of the participants in the project.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The impact is primarily on the implementation deadline.

**Probability:** rare.

**Impact:** Significantly.

**Classification:** medium risk.

**c) When the risk is likely to occur**

At each stage of project implementation.

**(d) Description of possible measures (avoidance, retention, reduction, transfer)**

The risk is not suitable to be accepted - it requires large reserve resources, mostly from time to time.

The risk should be managed to reduce and control it within acceptable limits. The OE will establish a professional working relationship with the Contracting Authority's team and other stakeholders in the project by regularly submitting information, organizing workshops, managing meetings, drafting statements of a different nature, presenting reports, etc. In turn, the Contracting Authority's team should assist the OE in fulfilling its obligations by submitting the required information in a timely manner, helping to achieve effective cooperation between the parties involved in the project, etc.

**(e) Party bearing the consequences of the risk**

Contracting Authority.

**(f) Party responsible for risk management**

Owner's Engineer.

**Risk: *Complaints against decisions to award an EPC contract or a contract for the supply of linear pipes***

**a) Description of the causes**

During the tender phase of the project the Contracting Authority intends to organize the following procedures for preparation of the commencement of the construction:

- PPL restricted procedure for selection of the Linear Pipeline Supplier - with delivery range of linear pipes;
- Limited PPL procedure for selecting an EPC Contractor - with scope of engineering, supply, construction, training and commissioning of the pipeline.

The risk may consist mainly in appealing the tender procedures as well as in problems with the preparation of the documentation for the selection of Supplier and Contractor of the EPC and the conduct of the procedures themselves.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The impact is primarily on the implementation deadline.

**Probability:** often.

**Impact:** Medium.

**Classification:** medium risk.

**c) When the risk is likely to occur**

In Phase 1 - Services during the Auction Phase of the Project, before commencement of construction.

**(d) Description of possible measures (avoidance, retention, reduction, transfer)**

The risk can not be avoided.

The risk is not suitable to be accepted - it requires large reserve resources, mostly from time to time.

The risk should be controlled by the Contracting authority and the Owner's Engineer.

Measures to be taken by the OE are:

- Drawing up a management plan, including a detailed schedule of the Project with critical events affecting the project's final date of implementation;
- Track the timing and timely identification of corrective actions in the event of any deviation from it;
- Strong preparation of documentation for participation in the public procurement procedure;
- Transparent procedure for the selection of Supplier and EPC Contactor.

The OE will support the Contracting authority with his expertise in order to conduct the procedures in the most effective manner and in the best interest of the Project.

**(e) Party bearing the consequences of the risk**

Contracting Authority.

**(f) Party responsible for risk management**

The risk should be controlled by the Contracting Authority and the OE. In this respect, each of the Contracting Authority and Owner's Engineer's team is required to assume their responsibility and perform the necessary activities to achieve the objectives of the Project.

**2.2.3. Logistics**

The OE will have offices in the territories of Bulgaria and Greece with excellent working conditions, sufficient working space for all experts and equipped with modern and professional equipment. A detailed description of the logistics for the implementation of the entire project is given in paragraph 2.1.3 of this document. In order to avoid repetitions, at this point we comment on the logistics necessary for the implementation of the engineering assistance activities. In general, the logistics required for the particular task are the same as the one for the implementation of the whole project. The OE will provide all necessary resources - resources, materials, equipment and teams that are needed to perform the tasks of controlling engineering activities. The main resource for the implementation of the project is the specialists that the OE will provide for the implementation of the contract. In general, the team for the implementation of these tasks will be located at the headquarters of the Project office of OE to carry out the tasks of the first phase of the project. During the second phase, most of the activities will be carried out on site at the construction site and offices located on the site. We understand that the EPC Contractor will provide the means of transport that will ensure the normal movement of team members as well as site offices for the normal work of the experts.

A very important resource that will be provided by the OE is the assistance in the execution of the engineering assistance tasks of the Central Offices of the companies involved in the merger.

In addition to the materials and resources provided by the EPC Contractor, the OE will provide full support and technical support to its team of experts, assisting them with all administrative,

technical, secretarial and translation activities they will need in order to be able focus entirely on the fulfillment of their core duties in implementing the project. The OE will ensure consistent and uninterrupted work of the team, including regular payroll and social and health insurance.

The Team leader, assisted by the administrative support team, will take care of the proper allocation of the material resources so as to ensure the fulfillment of the engineering assistance tasks.

Of great importance for the realization of the project for the construction of "Greece-Bulgaria Natural Gas Interconnector" is the knowledge of the requirements of the Bulgarian and Greek legislation as well as the EU normative documents. In this respect, the OE will continuously monitor the information related to the project requirements. The OE will monitor the changes in Bulgarian, Greek and EU legislation that may affect the implementation of the project by informing the Contracting Authority of the consequences arising from these changes related to the implementation of the project. Last but not least, the Document Management System is another important resource that will contribute greatly to reducing time for tasks and tracking performance. This tool controls the flow of information and controls its distribution, thus ensuring the team's information security for the proper implementation of project activities, including those of engineering assistance.

The Contractor understands that as a key resource, key experts have a crucial role to play in the implementation of the project and has therefore sought to provide professionals with proven qualifications and experience who can expertly work on the project subject to the contract. The positions of key experts will be assigned to experienced Bulgarian and foreign specialists with excellent knowledge of such contracts, Bulgarian and Greek legislation and European standards for natural gas transfer. Some of these experts have already proven their professionalism in the implementation of such projects. The remaining members of the team will bring fresh ideas and reinforce the Competence and Specialization of the Consultant as a whole.

It is envisaged the use of additional expert staff (non-key experts), who will actively support, organize and contribute daily to the efficiency of the work of the main expert staff.

The OE team members will be mobilised as per the project requirement and progress of work respecting the EPC Contractor schedule (delivery date of material such as valves, insulating joints, fittings, pipes, ...) and the delivery date of the pipelines. As the schedule of the EPC Contractor is not known, the Mobilization Plan has been built based upon our scope of work understanding and experience of similar project.

The following assumptions has been taken:

- Delivery of the pipeline on site by the client: 9 months after the contract award.
- Delivery of the material on site by the EPC Contractor: 16 months after the contract award.

Below, the proposed mobilization plan.

Position	Month of mobilization (T+XX month)	Mobilization duration (month)
Engineering Design Engineer (Engineering Leader)	T0	28M
Mechanical Engineer/Piping Engineer	T0	28M
Electrical engineer	T0	15M
Engineer on SCADA/ATP	T0	15M
Engineer on the pipeline	T0	15M
Civil Engineer	T0	15M



Support Engineer at the Consultant Headquarters	T0	28M
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T0 = Commencement of the Project

The OE is convinced that the resources available and available are sufficient to meet the requirements of this project, specifically for the implementation of the engineering assistance activities and to contribute positively to the realization of the project within its budget and timeframe.

*2.2.4. Personnel organization - division of functions and assignment of tasks, including the involvement of local expertise in engineering design (both for the Bulgarian and for the Greek part)*

For efficiency and effectiveness, we will share the functions and responsibilities between the experts in a way that ensures the harmony and integrity of the process. On the basis of the distribution of functions and responsibilities among the members of the Assigning team designated to carry out project activities, a system of control over the current performance of the activities of the individual members will be established, guaranteeing to the highest degree the successful accomplishment of the assigned tasks and functions. The control will be combined with immediate communication between the Contracting Authority's team and the OE team, aiming at maximizing the results of the accomplished tasks and their timely completion.

<b>Activities and tasks of Owner's Engineer (OE) Engineering Assistance</b>	<b>Responsible expert from the OE team</b>
Overview of Engineering Assistance Services - Phase 1	
Detailed review of the existing technical documentation provided by the Contracting Authority - the engineering and design documentation (FEED) and the technical design	Project manager; Project management services manager; Head of Engineering Design; Non-key experts
Detailed review of documents and reports prepared after the FEED and the technical design until the award of the Construction Contract and the contract of the Linear Pipeline Supplier, including a review of the working design carried out by ICC JSC and its shareholders IGI Poseidon and BEH	Project manager; Project management services manager; Head of Engineering Design; Non-key experts
Review and comment on the documentation of the EPC Contractor	Project manager; Head of QMS; Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection Non-key experts
View and comment on the documentation of the Linear Pipe Supplier ensuring that it is in compliance with the specification	Project manager; Head of QMS; Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection Non-key experts
Overview of Engineering Assistance Services - Phase 2	

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Review and comment on the documentation of the EPC Contractor	Project manager; Head of QMS; Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection Non-key experts
View and comment on the documentation of the Linear Pipe Supplier ensuring that it is in compliance with the specification	Project manager; Head of QMS; Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts
Review and Acceptance of Detailed Design by the Contractor on behalf of the Contracting Authority	Project manager; Project management services manager; Head of Engineering Design; Non-key experts
Review and supervision of the Contractor's EPC procurement activities related to design decisions	Project manager; Project management services manager; Head of Engineering Design;
Engineering assistance and control during the design process during the construction phase	Head of Engineering Design; Non-key experts
Review and Verification of Final Technical Documentation (as-built drawings) for the Contracting Authority	Head of Engineering Design; Non-key experts
Monitoring the status of documents by using a database to monitor information and report on progress	Project management services manager; Head of Engineering Design;
In the case of requests for change/contractual variations, review of the proposals and evaluation of contractual options from a technical and commercial point of view for the needs of the Contractor Project Management Services Manager	Head of Engineering Design; Non-key experts
<b>Review, comments, and approval of technical performance by Contractors (EPC and Pipe Provider)</b>	
Verification of accuracy, completeness, format and content for the Contracting Authority's needs	Head of QMS; Head of Engineering Design; Head of QA/QC and Material Inspection Non-key experts
<b>Technical EPC uses and deviations</b>	
Ensuring that all technical issues and answers to them are submitted in writing	Head of Engineering Design; Head of QA/QC and Material Inspection Non-key experts
Analyzes any technical inquiry and, where appropriate, proposes a solution of the Contracting Authority or gives instructions to the Designer concerned from the Contracting	Head of Engineering Design; Head of QA/QC and Material Inspection;

Authority	Non-key experts
Providing timely responses, as agreed by the contractor of the EPC	Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts
<b>Stop control</b>	
Ensures proper management of suspension of project design results by the EPC Contractor	Project management services manager; Head of Engineering Design; Non-key experts
Monitor permissions for all stops until finalized status is reached	Project management services manager; Head of Engineering Design; Non-key experts
<b>Numbering of equipment and data archives</b>	
Monitor the development of appropriate procedures for equipment numbering by the EPC Contractor	Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts
Tracking Indexing, Layout, Printing and Binding of Equipment Records	Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts
<b>Document Control Registers and Final Drawings</b>	
Monitors the development and approves the control records of the documents submitted by the EPC Contractor	Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts
Ensures on behalf of the Contracting authority the correct recording and archiving of the technical results until the moment when the executive drawings and documents are transmitted	Head of Engineering Design; Non-key experts
<b>Changes in construction</b>	
Views the technical content of the Contractor's claims of the EPC for contractual variations/modifications to the Terms of Service of the Contractors of the EPC specified in the Construction Agreement	Project management services manager; Head of Engineering Design; Non-key experts
<b>Other OE results</b>	
Production of reports and other documentation at the request of the Contracting Authority	Project management services manager; Head of Engineering Design; Non-key experts
<b>Value - functional analysis</b>	
Preparation of value-functional analyzes to identify and resolve factors that may lead to increased costs or efforts in the design, construction and operation of the Project	Project manager; Project management services manager; Head of Engineering Design; Non-key experts

<b>Safety inspections</b>	
Monitor the development of plans for the timely and systematic organization of safety checks during the design, construction and commissioning of the Project	Head of the HSSE
Presence of such inspections on behalf of the Contracting Authority to ensure that the approved procedures are duly followed and implemented	Head of the HSSE
<b>Reports on Ending/acceptance by the Contractor to the EPC</b>	
Ensures the preparation and submission of reports on the completion/acceptance by the Contractor of the EPC by identifying the necessary content, reviewing and verifying the reports by the Contractor of the EPC for the acceptance of the works	Project manager; Project management services manager; Head of Engineering Design; Non-key experts
Inclusion of a recommendation for acceptance under the Construction Contract by the Contracting Authority and indication of the records in support of such recommendation	Project manager; Project management services manager; Head of Engineering Design; Non-key experts
<b>Supervision of engineering and design during the detailed design phase</b>	
Observes on behalf of the Contracting Authority whether the engineering and design activities are carried out by the Contractor of the EPC in accordance with the Construction Contract	Project manager; Head of Engineering Design; Non-key experts
Review and approve to the Contracting Authority all engineering results obtained by the designers to ensure progress and compliance with the relevant contractual documents / requirements. In general, the OE will review all engineering documents when provided to the Contracting Authority	Project manager; Head of Engineering Design; Non-key experts;
Review of Process Design Charts, P&ID Diagrams, Drawings, and Classification of Hazardous Areas	Head of Engineering Design; Non-key experts
Design review by designers with regard to the Critical Main Elements of the Equipment, including attending meetings with Suppliers / Manufacturers if necessary	Head of Engineering Design; Head of QA/QC and Material Inspection Non-key experts
Answering technical questions from designers	Head of Engineering Design; Non-key experts
Participation with designers at HAZOP, etc., as specified in the design contracts on behalf of the Contracting Authority	Head of Engineering Design; Head of the HSSE Non-key experts
Review Technical Content Claims for Changes in Technical Requirements Specified in the Contractor's Terms of Service for the Contracting Authority's Requirements	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection Non-key experts
<b>Supervision of engineering and design during the</b>	

<b>procurement phase of the EPC Contractor</b>	
Surveillance during the procurement phase of the Contractor and its contractors in terms of compliance with the project objectives and the technical requirements specified in the Construction Agreement	Head of QMS; Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection
Identification of basic equipment and monitoring of its planning	Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts
Technical evaluation of proposals/quotations	Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts
Supplier data	Head of Engineering Design; Head of QA/QC and Material Inspection; Non-key experts
<b>Supervision of engineering and design during the construction phase</b>	
Review of the schedule and construction scheme prepared by the EPC Contractor	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection; Head of Construction supervision
Review of human resources construction and resource mobilization documents prepared by the EPC Contractor	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection; Head of Construction supervision Non-key experts
Review of Contractor's Subcontracting Subcontracting Plans by the Contractor - Terms, Conditions and Schedules	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection; Head of Construction supervision
Review and recommendation to approve sub-contractor changes proposed by the EPC Contractor whether they are relevant to the Project	Project management services manager; Head of Engineering Design; Head of QA/QC and Material Inspection; Head of Construction supervision
Review and modification of the program for temporary	Project management

equipment and equipment for lifting and transporting heavy goods, including related studies	services manager; Head of Engineering Design; Head of HSSE Head of Construction supervision
Ensuring coordination between all actors working on the site and their relationship with state / local authorities and other relevant organizations	Project management services manager; Head of Engineering Design; Head of Construction supervision
Review and approval of the Quality Control and Quality Assurance Contractor's Plans and Procedures	Head of QMS; Head of QA/QC and Material Inspection; Head of Construction supervision
Review and approval of the implementation of the safety and control procedures on the construction site of the EPC Contractor	Head of HSSE Head of Construction supervision
Review and approval of the project implementation plan for the EPC Contractor	Project management services manager; Head of Engineering Design; Head of Construction supervision
Review and Verify for the Contracting Authority's needs the final technical documentation (As-built Drawings)	Head of Engineering Design; Head of Construction supervision Non-key experts

#### ❖ Plans and systems

Throughout the entire implementation period, the OE is committed to developing various plans and systems to facilitate the process of controlling the various activities carried out by Project participants. In carrying out the engineering assistance activities, the Document Management System will also be used. When performing these activities, the OE will complement and/or use the following plans and programs:

**Table: Plans and systems to be complemented and / or used by the Owner's Engineer in the implementation of the Engineering Assistance Activities**

Nº	Type of plan/system	Content	Responsible expert from the Owner's Engineer team
1	Engineering management plan (s)	Engineering management plans and procedures are developed, including technical issues and deviations. These plans and procedures ensure that the results of designers and other technical results are fully managed.	Project manager; Head of QMS; Project management services manager; Head of Engineering Design;
2	Control plan	Prepared to match the EPC Contractor's activities. Document all control activities and findings by using control sheets for specific activities and locations.	Head of QMS Head of QA/QC and Material Inspection Head of Construction supervision; KE Independent Inspector 1;

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			KE Independent Inspector 2
3	Delivery plan	Organization of supply of linear pipes - production, testing, transport, storage.	Head of QA/QC and Material Inspection Head of Construction supervision; KE Independent Inspector 1; KE Independent Inspector 2
4	Safety Management Plan	Prepared by the EPC Contractor to comply with its requirements and procedures applicable to the construction site.	Head of HSSE
5	Quality plan	Determines quality control.	Head of QMS Head of QA/QC and Material Inspection KE Independent Inspector 1; KE Independent Inspector 2
6	HSSE Plan	It includes health and safety requirements for the Bulgarian territory as well as the implementation of the environmental protection plans in accordance with the requirements of the EIA permits in the two countries - Greece and Bulgaria.	Head of HSSE
7	Plan for the implementation of activities and/or services	Sequence of performance of the activities and/or services and supplies of Equipment under the relevant schedules.	Project Manager Project management services manager; Head of Construction supervision;
8	Initial Schedule of the Project/ Program	Contains the contract activities of the OE that the initial schedule of the Project / Program is reviewed and commented upon until its final approval by the Contracting Authority. It shall be prepared taking into account the expected commencement of the two main contracts of the Project - the Construction Contract and the Contract of the Linear Pipeline Supplier and their respective time schedules.	Project Manager Project management services manager; Head of Engineering Design; Head of Construction supervision;
9	Schedule of the Project	It serves to control the Project and to measure in detail the progress of the Project and to compare it with the main stages of the contractual timetable. The progress of all activities of the EPC Contractor, respectively the Line Line Supplier and / or their subcontractors, is monitored.	Project Manager Project management services manager;
10	Material identification	Tracking the materials to their respective documentation.	Head of QA/QC and Material Inspection

	system		
11	Quality management system	Approved by the Contracting Authority. Through them will be created and expanded	Head of QMS Head of QA/QC and Material Inspection
12	Occupational Health and Safety Management System	the quality management system and regular quality audits. Part of the quality management services include the management of collective and preventive activities during the implementation of the Project.	Head of the HSSE
13	Document Management System	It contains procedures for enforcing health, safety, safety and environmental regulations and reporting and addressing health, safety, safety and environmental issues. It is used to monitor the implementation of the measures envisaged in the project documentation on OSHF.	Head of QMS Project management services manager;

#### ❖ Reporting

Reporting by the OE will be done by preparing and presenting reports on the activity carried out. In carrying out the engineering assistance activities, the OE will prepare and submit the following reports in electronic form and on paper:

**Table: Types of reports to be prepared by the Owner's Engineer in the implementation of the engineering assistance activities**

No	Report type	Content	Responsible expert from the Owner's Engineer team
1	Monthly reports	It contains a review of the state of play regarding the objectives of the Project, detailed information on the project contracts, progress of work and proposals for measures to reduce adverse impacts (if necessary) in relation to the Contractor, the Linear Pipe Supplier and other Suppliers who have contractual relations with the ICGB for the Project, as well as the progress of the OE itself with a forecast report for the next 30 days outlining the main items for the next reporting period.	Project management services manager; Head of Construction supervision; Head of Engineering Design
2	Technical and commercial proposals evaluation report	It contains an assessment of the technical	Project manager; Head of Engineering Design; Head of Construction supervision;
3	Completion Reports /	and commercial offers on the basis of the criteria included in the	Project manager; Project management services

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	acceptance by the Contractor to the EPC	approved evaluation procedure.	manager; Head of Construction supervision;
4	Design Review Report	Prepared by the Contractor	Head of Engineering Design;
5	Report on the HSSE	EPC for accepting work. The reports include a recommendation for acceptance under the Construction Contract by the Contracting Authority and indicate the records in support of such a recommendation.	Head of HSSE
6	Inconsistency reports	The OE monitors on behalf of the Contracting Authority whether the engineering and design activities are carried out by the Contractor of the EPC in accordance with the Construction Contract	Head of Construction supervision; KE Independent Inspector 1; KE Independent Inspector 2
7	Test reports	The OE monitors and reports to the Contracting Authority, for the Contracting Authority's needs, on the adequacy and extent of compliance by the Contractor with the EPC of the Contracting Authority's requirements for health, safety, safety and environmental management during the performance of the Contractor's activities.	Head of Construction supervision; Head of Engineering Design; KE Independent Inspector 1; KE Independent Inspector 2

#### ❖ Registers

Throughout the period of execution of the order, the OE has a commitment to prepare and/or maintain various registers to systematise important documents prepared by the Project participants. In carrying out the engineering assistance activities, the OE will prepare and/or maintain the following registers:

**Table: Registers to be prepared and/or maintained by the Owner's Engineer in the execution of the Engineering Assistance Activities**

No	Type of registry	Content	Responsible expert from the Owner's Engineer team
1	Register of contracts	The contract register serves as a basis for the preparation of annual / monthly reports that the OE examines and also serves as an interface between the accounting team of the Contracting Authority and an external accountancy firm, in order to ensure that the laws and regulations of Bulgaria and Greece are respected.	Project manager; Project Management Services Manager
2	Risk Register	It serves to oversee and control the	Project Management

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		implementation of mitigation measures.	Services Manager
3	Register of technical issues	Every technical question is recorded and should have a unique identifier for tracking purposes.	Head of Engineering Design; Head of Construction supervision
4	Document Control Registers and Final Drawings	Record and archive the technical results to the moment of transmission of the executive drawings and documents.	Head of QMS; Project management services manager; Head of Engineering Design
5	Register of certificates and reports	All reports and certificates are marked with unique consecutive numbers.	Head of QMS; Project management services manager; Head of Engineering Design Head of Construction supervision
6	Register of approved personnel performing inspections	Contains a list of approved inspection staff.	Head of QMS; Head of Construction supervision KE Independent Inspector 1; KE Independent Inspector 2
7	A list of defects	It is an electronic list of defects for removal of the pipeline system, which reflects all defects, deficiencies, faults and inconsistencies with the requirements of the Construction Contract that are established during construction at any point in the pipeline system	Head of Construction Supervision Head of Engineering Design; KE Independent Inspector 1; KE Independent Inspector 2

### 2.3. Construction supervision activity

#### ❖ *General responsibilities of the Owner's Engineer during construction*

The purpose of the Owner's Engineer (EC) in performing the construction supervision activity, is to assist the Contracting Authority in the implementation of the "Greece-Bulgaria natural gas Interconnector" project during the commissioning and training of its personnel, as well as to coordinate and manages on behalf of the Client all project-related Equipment and Services Suppliers such as the Contractor of EPC, the Pipeline Supplier, etc., in such a way as to ensure that the Contracting Authority's objectives in terms of time, cost, health, safety and environment, ecological requirements and quality for the Project will be achieved. The Owner's Engineer will only act as Client Assistant Consultant, issuing recommendations for the implementation of the Project.

For the Bulgarian section of the pipeline route, according to the provisions of Art. 166, para. 1, item 1 and item 2 of the SDA, the Contracting Authority will conclude a separate contract for the assignment of construction supervision, inspection and control of the construction materials used in the construction site which ensure compliance with the essential requirements for construction sites according to the provisions of the Bulgarian Law on technical requirements and the ordinance according to Art. 9, para. 2, item 5 thereof.

In accordance with the requirements of the Owner's Engineer assignment for the project for the construction of "Greece-Bulgaria natural gas Interconnector", the OE will monitor and manage the

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construction site during construction on behalf of the Client, the work of the Contractor of EPC and the process of supply of linear pipes from the Line Pipe Supplier. With the exception of a minimum team of people for coordination at the Client's headquarters, the OE will base its project team on the site throughout the construction process and will ensure and verify that at least:

- *The EPC Contractor and the Line Pipe Supplier adhere to the Project Timetable:*

The OE will follow the progress of the project implementation through control over the activities of the EPC Contractor and the Line Pipe Supplier, analysis of the time schedules of the individual activities within the project and their impact on the implementation schedule.

- *All construction works carried out by the Contractor of EPC are in full compliance with the Construction Contract:*

The OE will monitor and review the Project activities related to procurement, shipping, inspection and control of materials to ensure that they are carried out in accordance with the Construction Agreement and the approved procedures. In case of inconsistency, the OE will inform the Client. The OE will prepare, organize and participate in on-site inspections of the EPC Contractor.

- *All construction works carried out by the Contractor of the EPC are of the required quality:*

Based on the timetable of the Project and Quality Assurance and Quality control Activities of the EPC Contractor, the OE will develop and maintain a test and inspection plan covering all related activities in relation to the Construction Contract and the applicable specifications. The test and inspection plan will include all necessary activities to ensure compliance with all project specifications - contracts, specifications, etc. and the requirements of legislation and permits. The OE will monitor all construction activities to ensure compliance with approved drawings and specifications. The Inspection and Audit staff appointed by the OE will control the compliance of the Contractor with the requirements of the Construction Agreement. The OE will submit reports, as required by the Contracting Authority, on the results of the monitoring, the progress of the construction, the acceptance of the materials and the problems encountered at the site.

- *All work performed by the Contractor (including subcontractors) of EPC is performed in accordance with the applicable legal documents, standards and specifications:*

The OE will be fully acquainted with all the normative documents for the implementation of EU funded projects as well as with the applicable normative documents, standards and specifications, will observe compliance with them, will monitor changes in the existing requirements and recommendations and will notify the Client for them.

- *All delivered pipeline comply with the specified quality and quantity according to the provisions of the Contract for Line Pipes Supply and the Schedule of the Project:*

The OE will monitor and review the Project activities related to procurement, dispatch, inspection and control of materials to ensure that they are carried out in accordance with the Line Pipe Supplier's contract and the approved procedures.

Based on the Project timetable and quality assurance and quality control activities of the Line Pipe Supplier, the OE will develop and maintain a test and inspection plan covering all activities related to the contract and the applicable specifications. The test and inspection plan will include all the necessary activities to ensure that all delivered goods comply with the project specifications - contracts, specifications, etc. and the requirements of legislation and permits. The EC will be primarily responsible for the quality of the delivered goods in order to ensure compliance with the approved drawings and specifications. The Inspection and Audit staff appointed by the EC will control the compliance of the Line Pipe Supplier with the requirements of the Line Pipe Supply Contract. The OE will submit reports, as required by the Contracting Authority, on the results of the monitoring, the progress of the construction, the acceptance of the materials and the problems encountered at the site.

- *Any and all changes/contractual variations in the EPC work, are fully justified and supported by arguments:*

The OE will review the technical content of the claims of the EPC Contractor for contractual variations/ modifications to the Terms of Reference of the EPC Contractors, specified in the Construction Agreement.

The OE will inform the Client if activities that are not included or deviated from the Construction Agreement are performed. The OE will confirm on a daily basis and will enter in the registers on the construction site that there are no activities that are subject to contractual changes without the prior written approval of the Contracting Authority as specified in the Construction Contract. For the Bulgarian section there will be a certified Order Book at the site, which will be completed and maintained according to the provisions of the SDA. Entries in the Order Book will be made only by the persons authorized under the SDA and according to the provisions of the SDA.

The OE will control the Change Management Process by evaluating the changes/contractual changes proposed by the EPC Contractor or other Supplier, taking into account local legislation and a contractual framework and define, supervise and monitor the stages as defined in the Change Management Process. In this sense, the OE will monitor that any and all changes / contractual variations in the EPC Terms of Reference are fully justified and supported by arguments.

- *All material and test inspections related to the work of the EPC Contractor and the components of the gas pipeline system have been properly performed and fully documented:*

The OE, acting on behalf of the Contracting Authority, will require the Contractor to perform sufficient inspections and tests of work and of the pipeline system in order to demonstrate compliance with the Construction Contract. The OE will review and approve on behalf of the Client, amend, modify or reject any EPC Contractor's inspection and test plans that considers relevant depending on the nature and performance of the items to be tested. The OE will monitor the compliance of the EPC Contractor with the quality requirements set out in the Construction Agreement. Inspections and tests of the materials delivered by the Line Pipe Supplier will also be planned taking into account the requirements for carrying out inspections and testing by an independent inspector. The OE Test and Inspection Plan will include all necessary activities (including Independent Inspector Services) related to the inspection and testing of Linear Pipes on Greek and Bulgarian territory as well as inspection of the production of the Line Pipe Supplier. The OE will review and approve, modify, amend or reject the quality plan provided by the Line Pipe Supplier, which controls product quality control.

The OE will verify that complete and accurate final technical documentation is provided by the EPC Contractor during the execution of the Construction Contract as required by the Contracting Authority and will report to the Contracting Authority.

- *Drawings and documents are available at the site in version "as built documentation":*

The OE will review and audit the construction site drawings according to the drawing control procedure to make sure that the latest approved variants are available, including a review of additional site design and project modifications.

- *Mechanical completion is achieved when the EPC Contractor proposes:*

After the mechanical completion of the works, the EPC Contractor filed an application, thus notifying the OE when, in his view, the works were completed. The Engineer has a period during which to inspect and issue an Acceptance Certificate or reject the application, argued. The OE will provide a list of the reasons and an accurate description of the work to be performed by the EPC Contractor to enable the issuance of an Acceptance Certificate.

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In accordance with the requirements of the Contract Documents, the OE will issue an Acceptance Certificate to the EPC Contractor, communicating the date on which the Works are completed in accordance with the Contract, except for the small unfinished work or deficiencies that will not substantially alter the use of the Works for the certain activity .

All these activities will be carried out taking into account the provisions of the two countries - Greece and Bulgaria.

- *The preparation for the start-up works has been completed:*

For the Contracting Authority's needs, the OE will review and approve the EPC Contractor's procedures for start-up works and will participate on behalf of the OE in the preparation of the start-up works prior to the start of this activity, taking into account the regulatory framework of the two countries - Greece and Bulgaria and the provisions of the Construction Agreement. The OE will monitor the Contractor's activities during the start-up work to ensure their safe execution in accordance with the Construction Contract and the approved procedures. The OE will coordinate for the Contracting Authority's needs the activities of the EPC Contractor on start-up works. For this supervising activity, the OE will appoint its own staff (jointly with the staff of the independent inspector on Greek territory in accordance with the independent inspector's assignment).

- *Preparations for commissioning have been completed:*

For the purposes of the Contracting Authority, the OE will review and approve the EPC Contractor's procedures for commissioning and will participate on behalf of the OE in commissioning prior to commencement of this activity, taking into account the regulatory framework of the two countries - Greece and Bulgaria and the regulations of the Construction Contract. The OE will monitor the Contractor's activities upon commissioning to ensure their safe execution in accordance with the Construction Contract and the approved procedures. The OE will coordinate for the Contracting Authority's needs, the activities of the EPC Contractor during commissioning. For this supervising activity, the OE will appoint its own staff (jointly with the staff of the independent inspector on Greek territory in accordance with the independent inspector's assignment).

- *All tests, checks and samples have been satisfactorily completed:*

During the start-up works, the OE will be present on all equipment and system tests. The OE will review for integrity and compliance with Project requirements the Test Documentation prepared by the EPC Contractor and will certify the specifications for successful completion (jointly with the staff of the independent inspectors on Greek territory in accordance with the independent inspector's assignment).

During construction, the OE will perform at least the following activities:

- *Review the EPC Contractor's documents of the special processes that will be subject to qualification. Present in the qualification of these processes. Overview of welding procedures and qualification of welders:*

In the process of managing the implementation of the Construction Agreement, the OE will review, agree, approve and send to the Contracting Authority all documents received from the EPC Contractor - Work Program, Quality Assurance Plan, Environmental Protection Plan, equipment, technology and organization of the construction, design and drawings, proposals for tests and others, including those related to the special processes that will be subject to qualification. The OE will be present in the qualification of these processes.

On the Greek territory, the independent inspector will conduct field tests of construction activities. To ensure that all welds meet the specified requirements and there is appropriate documentation that proves it.

Independent inspector staff:

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- will review the certificates of all materials received at the site, by verifying if they demonstrate that the material meets the requirements and will confirm this by stamping the certificates, including welding consumables;
- will be present at all tests, including hydraulic tests on the line pipes or other pressure equipment required by the specifications and all others that the Contractor can perform and will sign and seal the test documentation;
- will be present at all process and personnel qualifications required by the specifications and all others that the EPC Contractor can perform and sign and seal the relevant documentation. Without limitation, they include welding and non-destructive control;
- Monitor all aspects of welding to achieve the target;
- inspect selected elements of welding and welding processes to achieve the target;
- maintain a list of approved welders;
- will evaluate the radiographs of the welds
- At the request of the OE, it will regularly report on quality measurements as well as progress on the issuance of the final certificate of inspection and the preparation of the related supporting documentation.

Bulgarian legislation does not require certification of personnel by an independent inspector, as in Greece, but in order to unify the testing and inspection approach of the entire Project, the OE will apply the technical specifications for field inspection (including the inspection of welds) and will bring compliance with the approach to inspection and testing of the Bulgarian and Greek territory during the construction to the highest possible degree.

The OE will review the welding procedures and qualifications of welders and will monitor the implementation of current Bulgarian and Greek legislation and prepare and/or obtain the necessary documents.

- *Prepares control plans that match the activities of the EPC Contractor. Document all control activities and findings by using control sheets for specific activities and locations:*

The OE will develop a Project Implementation Plan that will be approved by the Contracting Authority. This plan will present the manner of interaction between the team members designated by both parties, the Client and the OE, as well as the distribution of responsibilities.

The performance of the Services is subject to regular reporting to the Contracting Authority. The reporting rules will be set out in the Project implementation plan. All results generated by the Services, such as written instructions, statements, checklists, meeting records, etc., shall be submitted to the Contracting Authority as part of monthly reports or reports of other periodicity, if this is the case. Regular reports accompanied by the other documentation are subject to acceptance by the Contracting Authority and are the basis for interim payments under the Agreement. The terms of acceptance of the Services and the grounds for payment are set out in the Agreement.

- *Ensures, on behalf of the Client, timely performance of the backfill in the Contractor's activities as provided in the Construction Contract or takes another approach to the process:*

The OE will ensure on behalf of the Client, the timely execution of the backfilling of the Contractor's activities as provided in the Construction Agreement, specifying and agreeing with the EPC Contractor on the Terms of Participation and Review in the Construction Schedule under the Construction Contract for tests, examinations, and inspections, after which the backfill is immediately made to avoid defects in the Works performed. Testing, examinations and inspections will be conducted and completed for the purpose of inspection and testing of the EPC Contractor's

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work prior to backfilling, in order to avoid the input of materials and equipment with hidden or unplanned defects in the gas pipeline system and as a guarantee of suitability for the purpose of the EPC Contractor's work.

- *Carries out all supervising activities in respect of the main results to be confirmed to the Contracting Authority that the construction progresses correctly in the direction of construction acceptance:*

The OE will carry out overall coordination of the construction process from the date of commencement of construction until the construction is commissioned.

The OE will develop plans and procedures that will be approved by the Client and will aim at control of monitoring and reporting on progress.

With regard to reporting to the Contracting Authority, The OE will provide a detailed monthly report containing a review of the Project status regarding the objectives, detailed information on Project Contracts, progress of work and proposals for measures to reduce adverse impacts (if necessary) and others in relation to the EPC Contractor, the Line Pipe Supplier and other Suppliers who have a contractual relationship with the ICGB for the Project, as well as the progress of the OE itself with a prediction report for the next 30 days, outlining the main items for the next reporting period. The Consultant will immediately notify the Client in the event of conflicting situations.

In addition, The OE will assess the readiness of the construction for commissioning and the achievement of the design parameters specified in the Contract Documents. The Consultant will continuously monitor the execution of the Contractor's work programs and cash flows and update the payment and cost information. He will immediately notify the Client if there is a change in the funds utilization plan.

- *Review the organization of the EPC Contractor's work, coordination procedures, workforce plans and schedules:*

The OE will review the coordination procedures, workforce plans and schedules of the EPC Contractor. Particular attention will be paid to the following:

- is the level of detail necessary to facilitate the targeted monitoring of progress and the application of penalties for inadequate mobilization of the resources of the EPC Contractor
- the adequacy of time allocation for the different types of activities;
- whether the consistency of construction activities is logical and realistic;
- compliance with the provisions of the Construction Contract;
- the overall timeframe for the execution of the works, the technological sequence of the works and the necessary completion dates;
- the timeframe for construction of each of the structures of the construction site and installation of the systems;
- schedules;
- test dates /terms;
- critical performance of the contract in due time.

The OE will review and comment on the submitted documents from the EPC Contractor and will make sure that they meet the technological consistency of the construction as well as the requirements of the Contract. After the review, The OE will prepare and submit its statement on the submitted documents.

- *Review of the delivery plan of the Line Pipe Supplier - Production, Testing, Transport, Storage:*

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The OE will control all Line Pipe Supplier's activities that must be performed in accordance with the Line Pipe Supplier's contract. The OE will verify that the activities of expedition, inspection and control of the materials follow the approved procedures. It will also monitor the establishment of the organization concerned with the delivery of linear pipes between the Line Pipe Supplier and the Contractor of EPC.

- *Observes the allocation of building resources, taking into account the respective priorities for compliance with the Project's construction program and recommends appropriate corrective actions when a shortage of resources may interfere with the project's program:*

The OE will continuously monitor the work program of the EPC Contractor and control it so as to reflect the actual performance of the works and the terms of the contract. If an update of the program is required in the course of the work, The OE will require the EPC Contractor to do so within a reasonable time. At the monthly monitoring meetings on the course of work, will review the implementation of the program, the allocation of construction resources, the quantity, quality, technological succession and pace of implementation of the site's construction and installation work, safe working conditions, supplies of materials and equipment, compliance with environmental protection requirements, etc. the EPC Contractor, the Supplier of Linear Pipes, the OE and the Client.

The OE will review and comment on the work program of the EPC Contractor and will make sure that it meets the technological consistency of the construction as well as the requirements of the contract. Following the review, The OE will prepare and present its statement on the submitted documents and recommend appropriate corrective actions.

- *Observe scheduled and actual deliveries of site equipment and materials, loading, storing, maintenance and installation of equipment and materials:*

The OE will carry out overall coordination of the construction process from the date of commencement of construction until the construction commissioning.

The OE will undertake day-to-day control of the planned and actual deliveries of site equipment and materials, loading and unloading, storage, maintenance and installation of equipment and materials as well as the execution of all types of work and will maintain complete documentation related to the implementation of the project, according to the requirements of the contractual conditions and the applicable Bulgarian and Greek legislation.

The OE will notify the Client of any problems associated with these activities.

- *Monitor and inspect the construction activities performed by the EPC Contractor or the subcontractors to ensure that such activities are performed in accordance with the project specifications, issue certificates (for the Bulgarian section - and sign acts on behalf of the Contracting Authority) if is necessary and that the work carried out is in conformity with the relevant quality standards; the certificates issued by and on behalf of the Contracting Authority are those provided for in the EPC Contractor and Contractor of Line Pipes Supply and/or assigned to the Assignment. For the avoidance of doubt, the certificates of the activities issued by the Contracting Authority and/or the OE are complementary and do not repeal the obligation to implement Ordinance No 3 of 31.07.2003 for drafting acts and protocols during construction for the Bulgarian territory:*

The OE will carry out site inspections based on the requests for inspections submitted by the EPC Contractor. The EPC Contractor will provide a message to the OE whenever a work is ready and before it is covered, hidden or packaged for storage or shipping. The OE will perform an inspection, review, measurement or test without undue delay. If the EPC Contractor fails to give the message, he will - when and if requested by the OE - disclose the work and then restore and repair it for his own costs.



If, as a result of verification, inspection, measurement or testing of any Technological Equipment, Materials or workmanship prove to be defective or otherwise inaccurate, The OE will reject the Technological Equipment, Materials or Workmanship by giving notice to the Contractor and gave reasons. The EPC Contractor should then immediately correct the defect and ensure that the rejected is in compliance with the Agreement.

If the OE requests that these Technological Equipment, Materials, Design or Workmanship be retested, samples must be repeated within the same terms and under the same conditions. If rejecting and re-testing causes the Client to incur additional costs, the Contractor of the EPC will have to pay these costs to the Client.

Regardless of any previous sample or certification, the OE may instruct the Constructor to:

- remove from the Site and replace any Technological Equipment or Materials that do not comply with the Agreement;
- remove and re-perform any other work that does not comply with the contract;
- perform any work that is urgently needed for the Security of the Site, either due to an accident, unforeseeable event or otherwise.

The Contractor of the EPC should adhere to the order within a reasonable time, or immediately if the case is urgent.

If the work is rejected, the EPC Contractor corrects the rejected work and invites the OE by Re-inspection request. If the defects are not remedied during the second inspection, the OE accepts the work at a convenient time after the defect has been finally rectified. Defective work will be described by the OE in Non-Compliance Reports.

No works will be accepted that are closed without the presence of the OE. Works that have been closed without being accepted by him are subject to disclosure. Work done without work permits, approved materials and working methods, declarations of input materials with a description and stamp of the EPC Contractor, that they are embedded in the particular construction, request for inspection, and/or have not been removed previous deficiencies. No accept of works that are executed in deviation from the approved design. Works that have not been accepted will not be included in the Payment Acts.

If necessary, certificates will be issued by and on behalf of the Client as provided for in the EPC Contract and Contract of Linear Pipe Supplier and/or assigned to the Assignment that the work is in compliance with the relevant quality standards. For the Bulgarian section, The OE will sign on behalf of the Contracting Authority acts prepared in accordance with the requirements of Ordinance No 3 of 31.07.2003. for drafting acts and records during construction.

- *Regularly carries out an on-site inspection of the construction works of the EPC Contractor:*

For the purposes of regular control and on-the-site inspections of construction activities, the OE will prepare a procedure for which forms will be developed for completion with all the necessary information. The procedure will be in line with current Bulgarian and Greek legislation and according to the approved investment designs. The Project Manager shall promptly inform the Client of possible problems arising from poor performance of activities that may affect the achievement of the project's objectives for the specified period.

In addition, the Project Manager will continuously monitor the construction work schedules and payment schedules of the Contractor for the EPC and will monitor them so that they reflect the actual performance of the works and the terms of the contract.

- *Plan the presence of inspectors during major tests on the main equipment, including factory acceptance tests (FAT), and conduct a detailed inspection when deemed necessary and issue certificates if necessary:*

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When conducting important tests of the Basic Equipment, including factory acceptance tests (FAT), and carrying out a detailed inspection, the inspection staff of The OE will be present as provided for in the inspection plans. This will include any testing carried out on the sites of the EPC Contractor or its subcontractors. The OE's inspection staff will validate the results of all trials and inspections and prepare a report for the Client.

- *Review and audit of the construction site drawings according to the drawing control procedure to make sure that the latest approved variants are used, including a review of additional site design and project modifications:*

The OE will review and audit the construction site drawings according to the drawing control procedure to make sure that the latest approved variants are available, including a review of additional site design and project modifications.

- *Monitors and audits the progress of the site's EPC Contractor's activities against the Project's schedule for the Contracting Authority's needs using information provided by the EPC Contractor and information obtained through an independent inspection; reports to the Contracting Authority all existing or potential delays and recommends actions to correct these delays. The OE ensures that the planning, control and reporting procedures are followed:*

The OE will set up a system for measuring progress with an appropriate weighting system, which is the basis of an Acquired Value Analysis that will be regularly produced by the OE. Regarding the reporting to the Contracting Authority, the OE will provide a detailed monthly report containing a review of the actual status regarding the objectives of the Project, detailed information on Project Contracts, progress of work and proposals for measures to reduce adverse impacts (if necessary), and others in relation to the Contractor, the Line Pipe Supplier and other Suppliers who have a contractual relationship with the ICGB for the Project, as well as the progress of the OE itself with a report containing a forecast for the next 30 days, outlining the main items with respect to the next reporting period.

- *Advises the Client regarding the issuance/approval of certificates and approval of milestones for payments to the EPC Contractor:*

The OE will review the Contractor's Claims for Interim and Final Payments and will verify the actual execution of site work. In addition, The OE will monitor the eligibility of costs in accordance with the Contracting Authority's requirements, in order to avoid payment of ineligible costs. After performing the above checks, The OE will issue the interim and final payment certificates within the deadlines provided in the Agreement, i.e. within 28 days, unless otherwise specified under the specific terms of the Contract.

- *Ensures quality in construction through selective inspection of installations, inspection presence and audit of test and inspection protocols:*

In order to ensure the quality of the construction and all the completed construction and installation works are in compliance with the applicable normative documents, the requirements of the Contracting Authority and the approved investment design, the OE will be present at the inspections in accordance with the prepared procedure and, the necessary information for the inspection carried out.

The OE will audit the work of the EPC Contractor and the Line Pipe Supplier against the requirements of their respective contracts.

The OE as the representative of the Contracting Authority will require the EPC Contractor to perform sufficient inspections and tests of the work and of the pipeline system in order to demonstrate compliance with the Construction Contract.

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The OE will be responsible for identifying defective work performed by the Contractor for the EPC, both during the design phase and during the final acceptance of the Contractor's activities on the EPC.

According to the Greek legislation, the certification of the Project by an accredited independent inspector is necessary. For this reason, the OE has concluded a subcontract for the relevant services from a company certified according to the Greek national legislation, which will provide the Services to an independent inspector. The certificates issued by the independent inspector on Greek territory will be part of the process of obtaining permits during the construction, testing and commissioning of the gas pipeline system and ground installations.

The Independent Inspector's staff will visit and attend the manufacturer's premises to perform a factory inspection of the Line Pipe Supplier for the Project. The purpose is to certify that all factory-insulated steel pipes DN 800 for the IGB project is in accordance with the specific requirements of the Contracting Authority described in the Order.

Another major duty of the Independent Inspector appointed by the OE will be field tests of the construction activities on Greek territory. The purpose of field inspections is to ensure objective certification by third parties.

The field inspections on the Bulgarian territory during the construction will be carried out by the staff of the OE as part of the functions of the OE as the representative of the Contracting Authority on the construction site. The aim is to align the approach to Greek territory by applying a similar inspection approach, although it is not required by Bulgarian legislation to ensure compliance with the required standards. Sustainable partnerships with inspection staff at all stages of the project ensure that the gas connection will be built in accordance with approved designs and specifications, which is proof of its reliability and security.

The inspection and audit staff appointed by the OE will control compliance of the EPC Contractor and the Line Pipe Supplier with the requirements of their respective contracts. The OE will submit reports, as required by the Contracting Authority, on the results of the monitoring, the progress of the construction, the acceptance of the materials and the problems encountered on the site.

- *Assists the Client in solving problems. Provides advice on all claims by contractors and when making claims for change/contractual variations and issues a technical statement and recommendation to the Contracting Authority:*

In the case of claims by the Contractors, the OE will consult the Contracting Authority with regard to the applicability of the claims and including as a dispute settlement committee if the latter is provided in the relevant contract.

- *Ensures that all necessary Insurances for the Project are in effect:*

The OE will provide full assistance to the Contracting Authority in managing the necessary insurance for the project. The project manager will review the submitted documents by following their compliance with the requirements of the Construction Agreement. If irregularities are detected, they will indicate the extent to which they do not meet the requirements of the Agreement and will require the Contractor to review the documents so that they conform to the contract. Throughout the project period, the Project Manager will monitor whether the insurances presented are valid and meet the requirements of the contract.

#### ❖ **Health, safety, security, environment during construction**

The OE will control the requirements for ensuring the health and safety of the construction site. The Head of the HSSE from the OE team will be a qualified person with a qualification, professional experience and technical competence in the field of design, construction and safe and healthy performance of Works, proven by a diploma and certificates, etc. and will periodically monitor compliance with safe working conditions.

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Our staff will be trained on site health and safety issues and will strictly monitor violations of workplace safety practices that will be communicated to the EPC Contractor for immediate removal. Health and safety at work have the highest priority for the OE in the project. It is considered to be of the greatest benefit to all parties not to allow accidents at the sites. Measures will be taken to predict all risks to work safety and the EPC Contractor's program to minimize risk for the relevant construction or commissioning activities will be reviewed in advance. The OE will cooperate fully with the safety inspection authorities to ensure that not only the regulatory framework is respected but also that the construction sites are "safe".

The OE will develop plans and procedures that will be approved by the Contracting Authority and will aim at control over health, safety, security and the environment, except for the obligations of the company performing the functions of Construction Supervision under Art. 168, para. 1, item 4 of the SDA, for health and safety requirements for the Bulgarian territory, as well as the implementation of the plans for environmental protection in compliance with the prescriptions in the EIA permits and in Greece and in Bulgaria.

The OE will monitor and report to the Client, for the Contracting Authority's needs, on the adequacy and the extent to which the Contractor's compliance with the requirements of the Client for Health, Safety, Security and Environmental Management is fulfilled by the Contractor at the time of performance of the EPC Contractor.

The OE will provide advice, guidance and expert assistance of Health, Safety, Security and Environmental Issues to EPC Contractor, and review, revise and recommend to the Client the approval of all Health, Safety, Security and Environmental Reports of the EPC Contractor, plans and documentation to verify that the EPC Contractor meets the environmental protection requirements included in the relevant EPC Contract. The OE will supervise the planning and performance of construction work by the EPC Contractor to verify that all safety issues during construction are fully resolved and that regulatory safety requirements and safe working practices are in place.

The OE will ensure that the EPC Contractor complies with the health, safety, security and environmental obligations laid down in the Construction Agreement and the applicable legal provisions.

The OE will review the EPC Contractor's health and safety statistics for both the work on each EPC contract and the project/corporate level, and will analyze the trends of these statistics. The OE will make recommendations on behalf of the Client to the EPC Contractor for appropriate corrective actions to counteract any adverse trends. The OE will take into account that the Bulgarian section also applies Art. 5, para. 7 of Ordinance No.3 for the preparation of acts and protocols during construction.

The OE will regularly attend all meetings convened by the Contractor on the health, safety, security and environmental protection of the Contractor and will review the attendance lists and records of all these meetings that fit into the document management system. The OE will participate fully in the Client Safety Program, acting as the Client's representative during all stages of the Program.

The OE will adhere to the EPC Contractor's Safety Management Plan and the procedures applicable to an office or construction site when visiting the facilities, offices, and works of the EPC Contractor.

The OE will have the authority on behalf of the Client to monitor and control if exceptional cases arise when an immediate disruption of the Contractor's work is required and require corrective action to preserve the life and health of any person under threat of avoidable death, injury or damage; to prevent the loss or damage to the property of the Contracting Authority or the ownership of another third party, whether that property is part of the Project facilities or otherwise and/or prevent an EPC Contractor's violation of health, safety, security, and environmental

protection requirements that are included in the EPC Contract, which constitutes a material violation of the EPC.

The authorization of the OE for temporary suspension of the activities of the EPC for the Bulgarian section will not concern the rights of the Construction Supervision to give instructions for termination the activities of the Contractor on the Bulgarian territory under the conditions of Art. 168 of the SDA and Ordinance № 3 for the preparation of acts and protocols during construction.

❖ **Quality assurance / control during construction**

➤ **regarding the duties of the Owner's Engineer (EC)**

In accordance with the requirements of the Contracting Authority, The OE will prepare and submit as a starting document a Project Implementation Plan (PIP), which will explain all the elements necessary for the implementation of the Project with reference to documents and tools to be further developed during the construction phase of the Project. The PIP will include the organization, roles and responsibilities of the OE team, as well as certain quality procedures and reporting for the completion of the Services such as: progress reports, financial reports, document formats and interim and final payment certificates and others. The PIP will describe how the project will comply with the quality assurance policy of the Contracting Authority with regard to the design procedures for quality assurance, quality control and continuous improvement of the process.

Quality assurance is the planned processes the project will follow to ensure that quality policy is respected. These processes are: audits to verify that project activities are in line with design procedures; process analysis to investigate the effectiveness of project activities; learning from experience and problems, and hence improving the process. Quality control is the monitoring of specific project results to determine whether they meet predefined standards and quality indicators. Continuous improvement of processes will consist of repeated application of process analysis throughout the project. An important focus of the PIP will be the verification of the quality assurance system of the Contractor for the EPC so that the team leader can assess whether the Contractor's quality standards meet the requirements of the Contracting Authority.

In order to ensure the quality of performance of the services covered by this project, the OE defines and uses the key procedures, tools, systems and methodological guidelines for effective quality management as defined in the ISO 9001-2008 quality management standard, by which the OE is certified, namely:

- **Documentation control:** Standard document control procedures will be applied throughout all phases of the contract, including the construction phase, to ensure the accurate dissemination of information.
- **Record control:** All documents related to the execution of the contract (reports, studies, analyzes, etc.) will be clearly identified, classified and stored for future reference.
- **Communication:** The project manager will serve as a focus point and will increase the flow of information between the involved in its organization parties, in order to exchange best practices, avoid duplication of effort, anticipate and respond to potential negative situations in a timely manner.
- **Product Quality Control:** All results produced during the project implementation will be reviewed for their quality against certain standards and criteria.
- **Monitoring, reporting and reviewing progress:** The OE team will continuously monitor the implementation of the project as a whole as well as the progress of the individual tasks by improving communication with contracting authorities and experts. All analyzes and reports will be reviewed to ensure their quality.
- **Internal audits:** by internal audits is reviewed the effectiveness of the Quality Management System (QMS) and ensure its maintenance and improvement. Audits will be

conducted in accordance with a plan approved by the Project Manager and will cover all QMS processes.

Where discrepancies are detected during audits, identifying, correcting actions, checking their implementation, and entering the necessary records, are performed according to the Internal Audit Schedule table. It assigns a matrix of responsibilities and credentials as follows:

**Table: Matrix of Responsibilities**

№	ACTIVITIES	Responsibilities and Powers				Documents used
		S	E	A	I	
1	Defining the internal auditors	PL	MR	HA	TO	QP
2	Plan and preparation of internal audits					QP
2.1	Preparation and validation of the annual Internal Audit Program	PL	MR	EO	HA	
2.2	Preparation and validation of plans for internal audits	PL	MR	EO	HA	
3	Carrying out internal audits CO, EA, PR ROP		LA, TA, MR	HA		QP
4	Documentation of the results of internal audits		LA, TA, MR	HA		QP
5	Follow-up events					QP
5.1	Making corrective actions		HA	MR		
5.2	Control over the implementation of corrective actions		LA, MR	HA		
6	Managing the Internal Audit Outcomes Guide		MR	EO	HA	QP

Legend	
S - solution	PL - Project Leader
E- execution	MR - Management Representative
A - assistance	HA - Head of Audit Unit
I - information	TA - Team Auditors
	LA - Leading Auditor
	QP - Quality Procedure

- **Monitoring and measurement of processes:**

The processes are controlled periodically with a view to their improvement. This is done during:

- internal audits, when checking the proper course of the individual QMS processes, according to the written regulations and in case of inconsistencies, corrections are made;
- annual reviews by management when analyzing and evaluating the entire QMS and making improvements.

The objectives to be met with the implementation of the monitoring and measurement of processes are:

- increasing efficiency by improving the organization and competence of staff;
- increasing project compliance by introducing improvements in processes.

- **Data analysis:**

The goals set by the OE in the implementation of this process are:

- Provide reliable information on the results of the QMS processes;

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- Evaluation the achievement of the criteria for the implementation of the QMS processes;
- Evaluating the results and adopting timely measures to improve the effectiveness of the QMS;
- Assessing the satisfaction of the Client;
- Evaluate the work of the interacting countries.

The information is collected from the primary documents. Data relating to the satisfaction of the Client shall be collected and documented.

The data obtained are processed and analyzed, discussed by the management periodically during the operational meetings, as well as during the review by the management. They serve as a basis for investigating the reasons for inconsistencies or deviations from the implementation schedule and for taking decisions to change the approach when establishing a relationship with the Contracting Authority and the cooperating parties.

All data is collected continuously throughout the implementation period of the project activities. Their final treatment for a given period ends before the review is conducted by the management, and in the periodic business discussions the responsible experts report on the observations made and the conclusions drawn, and on that basis identify and order corrective actions.

All collected and processed information is used to assess the suitability and efficiency of the QMS and to identify measures for its improvement.

The results of the process data analysis are the basis for reviewing the declared quality policy and reporting on the implementation and updating of the quality objectives adopted.

- **Improvement:**

This section defines the rules and methods for implementing the continuous improvement of the efficiency of the QMS and applies to the entire OE team.

The management of OE is responsible for defining the rules and methods for improvement, and all members of the team for their observance.

OE will seek to organize its activities in the direction of continuous improvement of results. All improvements are aimed at achieving, preserving and enhancing the satisfaction of the Client.

In order to implement the requirement of the international standard for continuous improvement of the activity, regulations for control and improvement of the processes in the whole QMS have been established. Mechanism for implementing the improvement process is data collection and analysis, which aims at revealing potential for improvement.

The methods efficacy and the improvement achieved is evidenced by the evaluation of audit results, QMS performance assessments in the management review, the recording and analysis of discrepancies and control over the implementation of corrective actions. Based on all the information gathered, new goals and opportunities for further improvement of the QMS are defined.

An important element for the continual improvement of processes and products is to eliminate the causes of inconsistencies, and to identify and perform preventive actions to prevent repetition.

The OE will implement its quality management system at all stages of the project, aiming at covering the relevant quality conditions in all project activities. The specific procedures will ensure:

- Quality of tasks and activities of the project;
- Effective communication with all parties;
- Efficient documentation of all correspondence, reports and other documents;
- Clear and effective management of finances;

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- Effective quality management;
- Effective administration of the obligations under the Contract;
- Agreed minutes of meetings and timely submission of documentation.

The overall responsibility for quality assurance under this project will be of OE, which will monitor compliance with the applicable standards and will verify that the final versions of the documents issued to parties, external to the Contractor, are of assured quality.

Daily compliance with quality procedures will be the responsibility of the Project Manager, who will follow the applicable procedures.

- **Meetings:**

As part of our communication and cooperation mechanism and as a key mechanism for construction supervision services, part of our strategy and in accordance with the Client's requirements, The OE will organize and conduct an inaugural meeting, regular management /coordination meetings to measure progress of the works throughout the duration of the Contract.

Other meetings will be convened to address specific issues - technical and other, as appropriate, including information meetings to inform project participants and local authorities, if necessary.

- **Reporting:**

The reporting scope requirements are described in the Terms of Reference and are dealt with in detail in point 2.3.4 of this proposal. Besides monthly reports, The OE will also produce specialized reports on specific issues and those that require the intervention of other parties. The OE will strictly adhere to the Client's requirements for the content and timing of the reports. The inspection and audit staff appointed by the OE will control the compliance of the EPC Contractor and the Line Pipe Supplier with the requirements of their respective contracts. The OE will submit reports, as required by the Contracting Authority, on the results of the monitoring, the progress of the construction, the acceptance of the materials and the problems encountered on the site.

Any results generated by the Services, such as written instructions, statements, checklists, meeting records, etc., will be submitted to the Contracting Authority as part of monthly reports or reports of other periodicity, if this is the case.

- **regarding the obligations of EPC Contractor and the Pipe line Supplier, OE**

The QA/QC obligations of the EPC Contractor and the Line Pipe Supplier will be part of their respective contracts. The OE will review all inspection and test plans, all test procedures and all other documents and requirements for the QA/QC under both contracts. Plans, procedures and documents relating to the QA/QC that are not acceptable to the OE will be returned to the EPC Contractor or to the Line Pipe Supplier from the OE, indicating their shortcomings, the correction/change requirements and the deadline for their re-presentation.

On the basis of the Project Schedule and the QA/QC Actions of the EPC Contractor and the Line Pipe Supplier, The OE will develop and maintain a test and inspection plan including all related activities in relation to the relevant contracts and applicable specifications. The test and inspection plan will include all necessary activities to ensure the compliance of all activities and delivered goods with the project specifications.

The OE will monitor all construction activities to ensure compliance with approved drawings and specifications.

The OE will monitor the commissioning of electrochemical protection before commissioning the gas pipeline, no later than six months after its installation into the sewer, regardless of whether the entire pipeline is installed.

- **Audit**



Prior to the commencement of the construction phase, The OE will provide the Client with a review and approval audit plan for the work of the EPC Contractor and the Line Pipe Supplier. This audit plan will consider the different aspects of the Project, the places where the work will be done, and others.

The OE will maintain and update an audit registry to track inconsistencies and corrective actions until the end of the relevant contract.

Experts on all parts of the OE team should, at all times, have full access to all parts of the Site, to all places from which natural materials are extracted, during the production, elaboration and construction of the Works (on the Site and other locations, etc.), have the right to check, inspect, measure and test the materials and workmanship and to check the progress of the Work and the elaboration and production of the Materials.

The EPC Contractor and the Pipe Line Supplier must provide the OE staff with a full opportunity to perform these actions, including providing access, facilities, permissions, and safety features. No such activity will relieve the Contractor of the EPC and the Pipe Line Supplier from any obligation or liability.

The EPC Contractor or the Pipeline Supplier will provide a message to the Project Manager whenever a job is ready and before it is covered or hidden. The relevant expert from the OE team will perform review, inspection, measurement or test without undue delay. If the EPC Contractor or Pipe Line Supplier fails to give the message, it will - when and if requested by the OE - disclose the works and then restore and repair them on behalf of the Contractor.

If, as a result of check, inspection, measurement, or trial of some work, it appears to be defective or otherwise fails to comply with the relevant Contract, the OE may reject the work by giving a message to the EPC Contractor or to the Pipeline Supplier, and indicate reasons. The defect must then be corrected immediately and ensure that the defect complies with the Contract.

If the OE asks for this test to be retested, samples must be repeated within the same terms and under the same conditions. If rejection and re-testing causes the Client to incur additional costs, the Contractor or the Pipeline Supplier must pay such costs to the Contracting Authority. Upon receipt of a communication from the EPC Contractor or the Pipeline Supplier that the construction works which are inconsistent with the approved designs have been corrected, the experts from the OE team will again perform the necessary verification.

Defects will be described by the OE in Non-Compliance Reports, which will be prepared immediately after the nonconformity is detected.

- **Testing**

Through its experts, the OE will carry out inspections of completed Works. The OE will perform verification, inspection, measurement or testing without undue delay. In order to properly inspect the Works for their quantitative and qualitative implementation, a procedure will be in place to ensure full compliance with the requirements of the Contracting Authority and the current legislation. If, as a result of verification, inspection, measurement or testing of any technological equipment, materials or workmanship prove to be defective or otherwise not comply to the Contract, the OE may refuse the technological equipment, materials or workmanship by giving notice to the EPC Contractor or to the Pipe Line Supplier justified. Then, the defect must be corrected immediately and be ensured that the rejected match the contract. If the OE requests such technological equipment, materials, design or workmanship be retested, the samples must be repeated within the same timeframe and under the same conditions. If rejecting and re-testing is the cause the Contracting Authority incur additional costs, then the EPC Contractor or the Pipeline Supplier must pay these costs to the Contracting Authority respectively.

The OE will require the EPC Contractor or the Line Pipe Provider to provide all necessary documents, licenses and certificates to verify that the test laboratory complies with the regulatory requirements. The OE through its team of inspectors will be present at the samples made by the EPC Contractor or by the Pipeline Supplier and their testing under laboratory conditions. In the event of any doubts as to the performance of the works certified by the laboratory, the OE will request retake of samples and tests of materials and will issue instructions for hiring an independent test laboratory to confirm or reject the tests.

In accordance with the requirements of the contract documents, the EC through its experts will attend all functional tests, and will sign all the test certificates. If necessary, the EC will order further sampling and testing to confirm the compliance of the completed works with the requirements of the contract. In this case, the EC will use the EPC Contractor's site lab. If any doubts arise as to the reliability of the data provided by the EPC Contractor's site laboratory, the OE will use the services of an accredited alternative laboratory to confirm or reject the compliance of the executed works with the requirements of the Agreement.

The OE will review and inspect production facilities and plants to verify the quality and standard of components that can not be verified after they have been input into the construction. For this purpose, the OE will request the assistance of the EPC Contractor and the Line Pipe Supplier as well as request the documentation available for the components to be inspected in order to familiarize them with their technical data. To perform the checks, the OE will rely on the EPC Contractor's program to anticipate the date of the visit to the production facilities and plants. Inspections and tests of the materials delivered by the Pipeline Supplier will be planned taking into account inspections and tests by the Independent Inspector (TPI).

If, following the presence of an inspection, check or test, the OE finds that the work of the EPC Contractor or the gas pipeline system or any part thereof is defective or not in accordance with the Construction Agreement, the OE will reject the defective work or component of the pipeline system in accordance with the Construction Agreement, sending to the EPC Contractor a written notice of such rejection, if so agreed in the Construction Contract, stating the grounds on which this rejection is based. The OE will record all failed tests in the list of defects for removal.

- **List of defects to remedy**

The OE will list all defects in a list of defects for remedy, which will also include the activities for remedy and repair of defects. The OE will assist the Client in seeking compensation for the remedy and repair of the defects in the EPC Contractor's work, without incurring additional costs to the Client.

The OE will store, manage and administer an electronic list of defects to remove of the gas pipeline system by listing all defects, shortcomings, malfunctions and inconsistencies with the requirements of the Construction Contract that are established during the construction of any section of the gas pipeline system. Updating the list of defects and changing the status of any position on it can only be done by the OE. The EPC Contractor will have full and unrestricted access to a list of defects for removal, but without the right to change the status of any item on the list.

- **Checks and Tests by Third Parties and by the Owner's Engineer**

Under Greek legislation, the Technical Regulation "Natural gas transmission systems with a maximum working pressure above 16 bars" requires the certification of the Project by an accredited independent inspector.

The independent inspector is required to have a notification under the European Pressure Equipment Directive 2014/18 / EU.



For the present public procurement, a participant who has been accredited as an independent inspector and will carry out these activities during the implementation of the project for construction of "GREECE - BULGARIA NATURAL GAS INTERCONNECTOR" is included in the joint-venture.

The certificates issued by the independent inspector on Greek territory are part of the process of obtaining permits during the construction, testing and commissioning of the gas pipeline system and ground installations (Article 13 (7) of the abovementioned technical regulation).

The independent inspector will report directly to the Contracting Authority. The Independent Inspector's staff will be approved by the Client.

The OE ensures that the independent inspector plan their activities with regard to the test and inspection plan and other QA/QC documents managed by the OE.

The Independent Inspector will conduct a field inspection of the construction works on Greek territory and a factory inspection of the Line Pipe Supplier for the Project as a whole.

To comply with the requirements of Art. 12 of the Technical Regulation mentioned above and the specifications in its Annex, the independent inspector will be accredited by the Greek National Accreditation System (ESYD) or an accreditation body in accordance with the requirements of standard EN ISO/IEC 17020 ("General criteria for the operation of different types of controlling bodies"). The independent inspector's staff will be technically competent and qualified to perform the services of an independent inspection.

As already mentioned, field inspections on Bulgarian territory during the construction will be carried out by the staff of the OE as part of the functions of the OE as a representative of the Contracting Authority on the construction site. The aim is to align the approach to Greek territory by applying a similar inspection approach, although it is not required by Bulgarian legislation to ensure compliance with the required standards.

➤ **Coordination of independent inspector and reporting**

The OE will ensure that the independent inspector will assume responsibility for the following basic obligations regarding the coordination and reporting of his services, namely:

- that the inspection will be carried out strictly in accordance with the applicable procedures and relevant technical specifications. The OE and the independent inspector will verify that a non-compliance report has not been prepared in respect of a document to be used for the performance of the services;
- be present at meetings when reasonably requested, including meetings prior to the inspection;
- receive from the OE all relevant documentation for the performance of the services of an independent inspector and provide it to the relevant inspectors. Receive inspection reports from the inspectors and transmit them to the OE;
- maintain a register of certificates and reports;
- maintain a register of approved personnel performing inspections;
- submit to the OE monthly paper reports detailing the services performed by the independent inspector during the month;
- in the monthly report will list all inspection visits during the month, indicating for each such visit at least the following: inspected items and issued certificates; type of inspection and spent man-hours.

Prior to the inspections, meetings will be organized between the OE and the independent inspector, whose purpose will be to clarify the following issues:

- defining the activities of the independent inspector in relation to the Test and Inspection Plans of the Project;
- definition of coordination requirements;
- a review of the work schedule;
- introduction of the reporting procedure;
- a description of the procedure for reporting inconsistencies and
- a description of the responsibilities and powers of the independent inspector.

The interconnections, the intersections, the ways of interaction and the work between the contractors under the separate contracts are bidirectional and imply transparency, consistency of actions and mutual cooperation.

➤ **Factory inspection of the Line pipe supplier for the Project**

To verify that all factory-made stainless steel DN 800 pipes for this project are in compliance with the specific requirements of the Contracting Authority, factory inspections will be carried out. The services of the independent inspector will be carried out by the staff of the independent inspector at the manufacturer's premises. Line pipes can be produced in several production cycles and at different locations. Inspectors will visit as many places as necessary and as many times as necessary to carry out the services of an independent inspector. Inspectors will issue non-compliance reports where applicable. Inspectors will ensure that any material included in the discrepancy report is appropriately isolated.

The approximate pipe line delivery length will be about 188 km, including reserve quantities. The supplied pipes will be of type SAWH or SAWL for the line sections of the pipeline and SAWL for pipes designed for cold bending (approximately 15% of the total). The common pipe specification - material class, tolerances, mechanical characteristics, tests, marking and other delivery conditions - is in accordance with EN ISO 3183: 2012, PSL Level 2 and Annex M - Pipes Ordered for European Terrestrial Transmission Pipes. The line pipes are supplied with the L450ME material class with four different wall thicknesses, corresponding to the various design security factors (11mm, 14.2mm, 16mm, 20mm), 3-layer polyethylene outer insulation and internal epoxy coating .

Independent inspector staff:

- will review the certificates of all materials received by the materials supplier, by checking that they demonstrate compliance with the specific requirements and will confirm such compliance by stamping the certificates;
- will attend all the tests required by the specifications and all the rest the supplier can perform and will sign and seal the test documentation;
- verify all necessary calibration certificates and approve copies of them;
- will check all necessary process and staff qualifications and approve copies of them;
- will be present in all process and personnel qualifications required by the specifications and all others that the Supplier can perform and will sign and seal the relevant documentation
- monitor all aspects of the production process to achieve the goal.
- will inspect individual elements of the production process and the product to achieve its objective
- issue an inspection report and certificate according to EN 10204, type 3.2, no later than two days after completion of the inspection.

In compliance with the factory inspections, compliance with the Technical Specification for Work 970/2, High Pressure Systems, Plant Equipment and Material Testing for Natural Gas

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Transmission Project and Technical Specification for Work 970/3, Systems for high pressure transmission, Inspection and Testing Instructions.

The line pipe supplier must operate an efficient quality system that meets the requirements of ISO 9001 as a minimum. During the factory inspections, the Line Pipe Supplier will communicate with the independent inspector.

- **Field tests on Greek territory**

The independent inspector will also conduct field tests on construction activities on Greek territory. The objective is to ensure certification by third parties, which will prove that:

- the materials used in the construction works meet the specified requirements;
- all specific tests have been successfully completed;
- all welds meet the specified requirements, and
- there is adequate documentation to prove everything above.

In order to confirm the achievement of the objectives, the independent inspector will issue a final inspection certificate of each construction, supported by appropriate documentation.

Independent inspector staff:

- will review the certificates of all material received at the site by verifying that they demonstrate that the material meets these requirements and will confirm this by stamping the certificates, including welding consumables;
- will be present at all tests, including hydraulic tests on the line pipes or other pressure equipment required by the specifications and all other specifications that the Contractor can perform and will sign and seal the test documentation;
- verify all calibration certificates and initiate copies of them;
- verify all required process and personnel qualifications and initiate copies of them;
- will attend all the process and personnel qualifications required by the specifications and all others the Contractor can perform and sign and seal the relevant documentation. Without limitation, they include welding and non-destructive control;
- monitor all aspects of welding to achieve the target;
- inspect selected elements of welding and welding processes to achieve the goal;
- maintain a list of approved welders;
- will assess the radiographs of the welds and
- at the request of the OE, it will regularly report on quality measurements as well as progress on the issuance of the final certificate of inspection and the preparation of the related supporting documentation.

The detailed activities of the independent inspector will be defined in accordance with the final inspection and testing plan of the EPC Contractor and with the test plan and quality plan developed by the OE team. The services will be carried out by the inspectors of the independent inspector at various locations during construction along the IGB gas pipeline on Greek territory necessary for the inspection and gas pipeline needs.

In connection with the field tests, the following will be observed: Technical specifications for operation 181/2, High pressure transmission systems, Pressure test; 180/1 Technical Specification, High Pressure Transmission Systems, Welding Inspection; 970/2 Technical Specification, High Pressure Transmission Systems, Plant Testing of Equipment and Materials for a Natural Gas Transmission Project, and the Preliminary Plan for Inspection and Field Inspection Testing.

- **Field inspections during the construction of the pipeline on Bulgarian territory**

During the construction, the OE staff, as a representative of the Contracting Authority on the construction site, will carry out field inspections on Bulgarian territory.

The OE will supervise the execution of the activities on behalf of the Contracting Authority and will attend all inspections and tests that are part of the construction process, inform the Contracting Authority of the results and sign the relevant protocols on behalf of the Contracting Authority if authorized for this activity.

The OE will perform check, inspection, measurement or testing without undue delay. In order to properly inspect the Works for their quantitative and qualitative implementation, a procedure will be in place to ensure full compliance with the requirements of the Contracting Authority and the current legislation.

Bulgarian legislation does not require certification by an independent inspector, as in Greece, and inspectors on the Bulgarian territory will not issue a certificate (eg EN10204, type 3.2) for their activities. However, in order to align the testing and inspection approach of the entire Project, the OE will apply the technical field inspection specifications (e.g. pressure testing, weld inspection, factory inspection of equipment and materials for natural gas projects) and will align the inspection and testing approach to Bulgarian and Greek territory during construction to the highest possible degree.

The OE will coordinate the work on certain field tests (e.g. hydraulic tests, as well as future cleaning of mechanical residues and water to ensure the quality of the transported gas during operation) for the Bulgarian section with the EPC Contractor and Construction Supervision as well as with General Directorate for Technical Supervision in accordance with the Bulgarian legislation and, in addition, for the Bulgarian territory, in order to unify the approach to the Greek territory, a similar approach of inspection will be applied, although no requirement is required of the Bulgarian legislation.

- **Supervision of obtaining construction permits, communication with Construction Supervision, land acquisition/setting up an easement right**

- **Building Permit Activities assigned to the EPC Contractor**

Obtaining the necessary permits from institutional/infrastructure owners and other countries, as required by the applicable laws in Greece and Bulgaria (for the Bulgarian section the property rights are acquired and a construction permit is issued) is the responsibility of the EPC Contractor.

After review of the available documentation submitted by the Contracting Authority to the OE, the latter will review and verify the documents submitted. As a result of this and in relation to the specificity of the project, the OE will advise the Contracting Authority on the necessity of any additional documents - permits, statements, reconciliation and approvals from control authorities, operating companies and others which are mandatory or recommended for the successful implementation of the construction exploitation

For the Bulgarian section, the OE will control the following indicative construction work permits and assigned to the EPC Contractor:

- Regarding approvals already received for passing:
  - Water sites (rivers, lakes, irrigation and drainage channels);
  - Roads and railway infrastructure;
  - Infrastructure and equipment owned by third parties - telecommunication and power cables and other infrastructure, and
  - Water sampling and discharge points for the hydraulic pipeline tests.

- Receiving permits for:
  - Temporary storage areas for pipes and equipment.

The contractors under the individual contracts are obliged to perform the works on time and according to the strictly defined standards, according to the individual contract documents.

Contractors under the individual contracts will provide information, documents and reports on the implementation of the Project, including those for payment. In the event of incompleteness and remark, appropriate adjustments should be made as well as timely responses to the questions and comments by the Contracting Authority and/or control bodies and institutions.

For this reason, on the Bulgarian territory, the OE will coordinate the interaction between the Contractor and the other archaeological research activities. If necessary, construction plans will be changed to avoid a conflict between the current study of archeology and construction activities.

On the Greek territory, the OE will monitor and coordinate the following activities related to the archaeological survey that will be carried out before construction starts:

- Commencement of communication and consultation with the relevant authority - Headquarters of the Ministry of Culture and Sports ("Office for Coordination and Monitoring of Archaeological Works in Major Projects") in relation to the archaeological survey;
- Adopt a "master plan-budget" - a breakdown of the cost of the study that will be funded by the Project and
- Coordination of the monitoring of the works by the personnel appointed by the competent authority and, in the case of findings during the construction work, the contact with the team or the subject who will carry out the archaeological survey in order to minimize the impact on the Project schedule and
- Others when needed.

• **Communication with Construction Supervision**

For the Bulgarian section to comply with the requirements of the Bulgarian legislation, a separate contract will be concluded for exercising construction supervision during construction in accordance with Art. 166, para 1 and Art. 168 of the Spatial Development Act. The Construction Supervisor shall monitor the implementation of the applicable legislation and the preparation of the necessary protocols, acts, tests, measurements, tests, etc., in accordance with Article 170 of the (TGM), Article 3, Article 4, Art. Article 7, paragraph 3 of Ordinance No 3/31.07.2003. for the preparation of acts and protocols during the construction, issued on the grounds of Art. 169, Para. 3 and § 18, Para.

OE will interact with Construction Supervision. The OE will cooperate with the Construction Supervision on the access to project information that is necessary for the fulfillment of its obligations, including in connection with the issuance of the relevant documentation, according to the requirements of the SDA and Ordinance № 3 for the preparation of acts and protocols during construction.

The OE will supervise the activity of the Construction Supervision, according to the requirements of the Bulgarian legislation and the obligations in the concluded contract, based on the high professional qualification of the Project Manager and the experts in the respective parts. The OE will organize its team in such a way that all experts are involved in the process of the relevant parts. The project manager will monitor the optimal distribution of the experts and their active participation in the implementation of the activity.

In case of established irregularities, unfulfilled contractual obligations by the Construction Supervision, in the case of established violations and/or deviations from the contractual conditions,

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etc., the OE will provide the Contracting Authority with its opinion on the problem that has arisen, as well as proposals for overcoming it.

The interconnections, the touch points, the ways of interaction and the work between the contractors under the individual contracts are bidirectional and imply transparency, consistency of actions and mutual cooperation.

• **Land acquisition/easement right activities**

The process of acquiring property rights on Bulgarian territory for the purpose of obtaining a construction permit is completed.

During the construction of the Bulgarian section, the OE will monitor the activities of the EPC Contractor related to the compensation of the landowners for the plantations during construction, which includes the following:

- Review and verify that all landowners/users are properly identified by counter-checks in relevant registers and/or communicating with local authorities for risk management purposes, that there are users who are not properly compensated, and giving assurances to the Client that the EPC Contractor has performed the necessary activities that are in his duties;
- Review and verification of the calculated benefits payments by the licensed evaluator and, if necessary, intended for the Contracting Authority to accept the assessments in terms of following the applicable legislation, methods, procedures and especially for the coverage of specific benefits for the affected properties/if on-site visits were carried out in the evaluation process;
- Interaction between the EPC Contractor and affected landowners / users and
- Reporting to the Client on the Compensation Process.

On the Greek territory, the OE will assist the Client in completing the compensation procedure for landowners in Greece. Activities related to this part of the Services will start earlier than construction and will include the following:

- Assistance to the District Commission (on behalf of the Contracting Authority) in the preparation of draft decisions for calculating the amounts for lost plantations, based on the determined unit prices.
- The zone of entitlement, which is available in the name of the Contracting Authority, including contacts with landowners and authorities for payment of lost plantations.
- In the case of an appeal by a landowner (if any), it provides technical support to the Contracting Authority and
- Preparation of monthly reports on the status of total payments to owners and land users.

➤ **Other activities at the discretion of the Participant ( Owner's Engineer )**

- **Interaction with Design Supervisor in accordance with the Spatial Development Act (SDA) in Bulgaria**

Pursuant to the requirements of Art. 162 of the Spatial Development Act in the Bulgarian Legislation for the Bulgarian Section, the Design Supervision in all parts is obligatory for all constructions from the first to the fifth category inclusive.

The implementation of design supervision includes the following activities:

- Control of the construction site in relation to the quality of the works and the strict compliance with the project;
- Consultations on the construction site during the project implementation;
- Participations in sessions and meetings related to the site realization;



- Assistance in selecting materials and contractors of the construction works;
- Consultations carried out at the workplace by designers or by electronic means of communication;
- Making of additional drawings of details;
- Implementation of lawful changes in the project, through modifications in the executive drawings - when the need for them has arisen during construction;
- Participation in committees and drafting of protocols for the final acceptance of the works and
- Others according to the Design Supervision Agreement.

The OE will interact with the Design Supervisor and will assist him in accessing to project information that is necessary for the performance of his duties, the terms and procedure for performing design supervision during construction that are determined by the contract between the Contracting Authority and Designer.

In fulfillment of its obligations, the designer has the right of free access to the site, the construction papers, the order book and the acts and protocols made during the construction.

The OE will send requests for clarifications to the Design Supervisor regarding questions of participants in the restricted procedures under the PPA for the selection of the EPC Contractor - with scope of engineering, delivery, construction, training and commissioning of the pipeline and for the selection of the Line Pipeline Supplier - with a range of supply of linear pipes, as well as those requested during the construction, if necessary to comment on the technical solutions.

As already mentioned in point 2.2. Technical assistance from this Technical Proposal, the OE will develop plans and procedures for engineering management, including technical issues and deviations (for the Bulgarian section according to Article 154 of the SDA) and review and approval for the Contracting Authority's needs. These plans and procedures will ensure the full management of design results and other technical results.

- ***Interaction, if necessary, with competent authorities to comply with the requirements of the legislation in Greece and Bulgaria***

The OE will assist the Client, if necessary, in the construction process, in the communication and correspondence with the competent authorities by preparing the necessary correspondence and organizing logistical receipt of different statements from these bodies.

- ***Meetings***
- ***Introductory meeting***

This meeting should be held at the start of the construction contract activities after signing the contracts with the EPC Contractor and the Line Pipe Supplier. The meeting will be attended by the Head of the Consultant's team, representatives of the Client and representatives of the EPC Contractor and the Line Pipes Supplier. The OE will prepare an agenda for this meeting and will forward it to all involved parties in advance.

The OE team will be aware of the scope of the contract activities in advance and will be offered a way of communicating with the teams of the Contracting Authority, the EPC Contractor, the Line Pipe Supplier and the Owner's Engineer . We believe that effective communication between project participants is essential for its smooth implementation. At the meeting, the Client will be informed about the OE idea regarding the main stages in the implementation of the construction. Based on the distribution of functions and responsibilities, a detailed description of the communication links and relationships during the construction between the Contracting Authority and the other contractors of the project will be developed. Also, the introductory meeting will discuss the issue of meetings and monitoring during construction.

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- **Monthly meetings**

As part of our communication and cooperation mechanism, and as a major service delivery mechanism, part of our strategy, the OE will organize and lead regular management/coordination monthly meetings at the site to report on progress over the duration of the contract.

The agenda of the monthly meetings aims to be controlled and documented:

- progress;
- the quality of the construction and repair works;
- safe working conditions;
- the supply of materials and equipment;
- environmental protection;
- the financial situation and others.
- the Progress, Coordination and Control Protocols will be prepared by the OE and sent to the respective parties, as part of the OE's obligations to submit to the Client the minutes of the relevant Progress Meeting as an annex to the Consultant's Monthly Report. Each minutes of a work meeting must contain the following information:
- date and place of the meeting;
- participants in the meeting;
- a report on the implementation of decisions taken at previous meetings;
- issues discussed;
- new decisions made.

The minutes of the meetings held during the construction will be stored at the site.

Other meetings will be convened to address specific issues - technical and other, as appropriate, including information meetings to inform project participants and local authorities, if necessary.

• **Keeping an archive**

Throughout the construction period, the OE will review, complete and archive the submitted documentation. If missing documents are found, it will require the Construction Supervisor, the EPC Contractor or the Line Pipe Supplier to provide them and inform the Client if necessary. For this purpose, the OE will develop and implement a backup system that will allow it to continually control the incoming information.

• **Conducting control on changes procedures during construction when need arises**

If the need to proceed with changes during the construction process is found, the OE will inform the Contracting Authority and will assist them to be approved. The OE will control the process of designing and coordinating these changes with various administrations, control bodies and/or operating companies and will assist the Construction Supervision (for the Bulgarian section).

**2.3.1. Activity implementation approach - tasks, steps, their sequence and coordination**

During the implementation of our assigned tasks related to construction supervision, we will maintain a flexible approach that will ensure the ability to reflect the changes that may be required as a result of our observations and analyzes during the course of the project .

The scope of activities is clearly stated in the Terms of Reference and all procurement documentation.

We assume that funding will be provided and the contract for the implementation of this procurement will enter into force within one month of its signature. Of course, even if this is delayed, a detailed assessment of the situation will be carried out and the necessary revisions of the program will be made to reflect the actual course of the Contract.

The deadline for performing this order is until the last of the following occurs:

- issuance of permit for use under Art. 177 of the SDA for the Bulgarian section;
- issuance of Operating License according to the Greek technical regulation "Natural gas transmission systems with maximum working pressure above 16 bar" for the Greek section;
- issuance of a Gas Pipeline Operational Certificate;
- the completion of the services by the OE under the Terms of Reference, but not longer than the term provided in Art.113, para. 1 of the PPA, namely - 5 /five/ years.

The performance of the activities by the OE will be limited to the normal working hours, 8 hours per day each working day, in accordance with the Labor Code and the contractual terms.

We assume that an experienced construction contractor will be selected who will organize and plan their activities in a way that will ensure their smooth execution, documentation and reporting so that the project of the Contracting Authority is completed within the timeframe and within the planned budget .

During construction, the OE will base its project team on the construction site. It is envisaged that the OE will carry out its activity during the construction in an office provided by the EPC Contractor. Other OE resources will be available. When necessary, we could include additional resources from our other offices.

The project manager will be available throughout the term of the Contract. The remaining experts will be available throughout the execution period of the works but will have commitments when needed following an instruction from the Project Manager and the requirements of the assignment.

The OE will take measures to ensure that the lessons learned during the implementation of previous similar projects as well as good engineering practices are taken into account in the implementation of the present one, in order to optimize the processes.

OE understanding is to be available to the Client whenever necessary and when working within normal business hours.

The OE will perform its services in close cooperation with the Client, following its instructions and the applicable regulatory framework.

With respect to this procurement, our team will provide quality performance management and quality control to implement the project on time and within the planned budget, covering the **key aspects** and referring to **Good Engineering Practices**, namely:

- ✦ **Implementation Management and Quality Control - the Engineer – Project Leader will be responsible for the overall management of the project implementation.**

As highlighted above in this document, the Project Manager from the Owner's Engineer team will:

- organize and manage the work of the OE team;
- performs the functions and duties of a representative of the Engineer under the Construction Contract;
- controls the contract-conforming execution of the construction;

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- controls the execution of the following activities: construction and assembly works in accordance with the approved investment projects, technical specification and construction contract; Quality assurance plans; Environmental Protection Plan; Health and safety plan;
- performs review of project documentation, permits, technical justification of claims, contracts with operating companies;
- coordinate and control the actions of the construction supervisor, ensure compliance with the main site procedures related to quality assurance plans (include, but not limited to, procedures for amendments and claims, site inspection, reporting, weekly meetings of the site);
- controls the compliance with the approved work program of the EPC Contractor and, if necessary, requires its updating during the execution of the construction;
- draws up payment certificates;
- draws up monthly reports to the Employer,
- monitors whether the EPC Contractor's insurances and guarantees are presented in accordance with the General and Specific Terms of the Construction Agreement;
- Controls the completeness and conformity of the construction documentation prepared according to the Bulgarian and Greek legislation until the transfer of the site and the receipt of the permit for use under Art. 177 of the Spatial Development Act for the Bulgarian section and a permit for operation according to the Greek technical regulation "Natural gas transmission systems with a maximum working pressure above 16 bar" for the Greek section.

The project manager will be responsible for the project management and will be assisted by the other experts responsible for the tasks in their specific areas. The project manager bears the full responsibility and will manage project activities as well as routine relationships in close cooperation with other key and non-key experts. He will maintain constant communication with the Employer and will inform him about the progress of the project, as well as any problems that may arise. He will be responsible for the overall development and planning of project implementation, submission of project reports, work plans and other key project documents.

The team of experts will report directly to the Project Manager.

The project manager will do his utmost to organize timely discussions and meetings between parties when necessary to ensure progress on the project so that it can be implemented on time and within the planned budget.

#### ✦ **Communication**

The OE Strategy provides for all correspondence between the participants in the construction to be directed with a copy to the Project Manager by the OE. Thus, full control is exercised over the activities of different parties in the construction process in order to avoid or detect in a timely manner the possible risks and problems caused by an action or inaction of one of the parties, of course giving third parties the right to communicate separately with the Employer.

The Project Leader will serve as a focus point and will increase the flow of information between its parties in order to exchange best practices, avoid duplication of effort, anticipate and respond to potential negative situations in a timely manner.

#### ✦ **Internal control and ensuring high quality execution of the order**

In order to ensure the quality of performance of the services covered by this project, the OE defines and uses the main procedures, tools, systems and methodological guidelines for effective quality management:

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- **Document control:** standard document control procedures will be applied at all stages of the contract to ensure the accurate dissemination of information.
- **Record control:** All documents related to the execution of the contract (reports, studies, analyzes, etc.) will be clearly identified, classified and stored for future reference.
- **Communication:** The OE will increase the flow of information amongst team members to exchange good practices, avoid duplication of effort, anticipate and respond to potential negative situations in a timely manner.
- **Product Quality Control:** All results produced during the project implementation will be reviewed for their quality against certain standards and criteria.
- **Monitor, report and review of progress:** The project team will continuously monitor the implementation of the project as a whole as well as the progress of the individual tasks by improving communication with contracting authorities and experts. All analyzes and reports will be reviewed to ensure their quality.

#### ✦ Implementation management methodology

Each phase stage in the project life cycle will be reflected as a fact giving the basis for the next phase. Through quality control, these facts will be verified before they are used in the next stage of project implementation, which will ensure its correctness. In addition, any document and material to be transmitted to the Contracting Authority will be subject to quality control.

#### ✦ Procedures

The approach to ensuring the quality of this procurement includes the following procedures:

- control is provided by reviewing and approving the working and official documents prior to their submission to the Contracting Authority;
- internal assessments;
- external evaluations;
- review and approval of the working and official documents prior to their submission to the Contracting Authority.

In order to provide the highest quality services in the implementation of the construction supervision activities, our team will provide all the necessary conditions for the successful implementation of the project. We guarantee that:

- the proposed organization of the project will be tailored to the specific needs of the Contracting Authority and will create the necessary prerequisites for ensuring optimal results;
- maintaining ongoing communication and coordination with the Client will ensure a timely reaction by the OE in changing circumstances affecting the implementation of the activities;
- the proposed experts - members of the Project Team have many years of experience and qualification for the qualitative and timely implementation of all the activities envisaged within the project and fully meet the qualifications, skills and professional experience required by the assignment and the other documents to this order;
- the extensive experience in projects with similar scope and content, enriched by the applied practices and the effectiveness of the described organization and methodology for the implementation of this public procurement, makes us a reliable partner in the realization of such projects.

#### ✦ Clear division of responsibilities

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A number of state and municipal institutions and administrations, public and private companies, and other interested parties will be involved in the implementation of the project, which defines the need to clearly define the responsibilities of all participants.

✦ **A team of experts from the Owner's Engineer**

- Project manager;
- Head of QMS;
- Head of the HSSE;
- Project management services manager;
- Engineering Design Manager;
- Construction supervisor;
- Head of QA/QC and inspection of materials;
- KE Independent Inspector 1;
- KE Independent Inspector 2;
- Non-key experts.

The team of experts proposed by us has a high level of qualification and experience to achieve the objectives and also has an optimal combination of competencies designed to give a practical aspect of our work.

✦ **Non-key experts**

Good engineering practice for the implementation of the project objectives and the specificity of certain activities is to provide additional experts to assist the proposed procurement team. These experts will be selected according to needs, depending on the necessity to perform certain activities. All experts will have higher education and relevant professional experience.

If there is a need to replace one of the experts, the OE commits to offer another expert who fully meets the requirements described in the documentation.

All experts are in legally regulated legal relationships with OE. These legal relationships are a result of the Company's statutes or labor and civil contracts between the company and the proposed experts. In this way the availability of all the experts proposed by the OE has been ensured. We undertake to take all possible measures of management and contract nature, as a result of which the members of the expert team:

- will be available to take up work exclusively on the current project for the entire duration of its implementation as required by their responsibilities;
- will be obliged to participate exclusively in the execution of the contract, preferring its implementation to other current and future projects and commitments and will be available throughout the execution term of the order - until its acceptance by the Contracting Authority;
- will be obliged to work in accordance with the Contractor's offer of the Quality Assurance Contract for the quality of the subject matter of the order.

The services provided by the OE will be implemented in two phases: Phase 1 - Services during the tender phase of the Project, before the start of construction; Phase 2 - Services during the construction phase of the Project. Construction supervision activities fall into Phase 2. For the purpose of more accurately presenting the time execution of the construction, we have grouped individual activities according to the key dates of the Indicative Program of the Project under item 5 "**Indicative Linear Schedule**". Specifies the sequence and coordination that guarantee performance at the level of individual tasks within the duration of the construction.

### 2.3.2. Risks and measures for their mitigation

The Client has identified the following risks in the simplified risk matrix, threatening the successful implementation of construction supervision activities:

- Physical damage during construction or commissioning;
- Loss /damage/ delay of goods during transportation;
- Unforeseen conditions of the site or terrain, including archaeological finds;
- Technological /design/ hidden deficiency of construction activities or materials;
- Shortage of construction budget;
- Health, safety and environmental damage;
- Delay in the delivery of the line pipes (which has an impact on costs), increase in the cost of the raw materials for the production of the linear pipes and/or the transport costs of the linear pipes;
- Problems with land acquisition (delays in acquisition, limitation of rights);
- Force Major/Long Force Majeure ("FM");
- Lack of performance (including late delivery of line pipes, delay in linking, delay in issuing licenses for the EPC contractor and line pipe supplier);
- Lack of performance by the Supplier (including non-payment).

#### ❖ **Way to overcome the risks**

The way to overcome the risks, their classification is described in detail in item 1.2. of this proposal.

Below is a structured description of the management measures for each of the risks identified by the Client that may affect the construction. The measures we propose to overcome these risks ensure the observation of the technological sequence in the execution of the construction and assembly works, the implementation of the construction schedule, the introduction of quality materials, the quality performance of the construction works, etc.

#### ❖ **Risk management measures**

##### ***Risk: Physical damage during construction or commissioning***

###### *a) Description of the causes*

It is possible during construction to encounter difficulties in the implementation of the project, due to established physical damage during construction or commissioning. The reasons for this may be different - natural disasters (storm, hail, heavy rain, snow and ice, floods due to natural disasters, damage from falling trees, branches and other objects as a result of natural disasters, landslides and collapse of earth masses, groundwater), accidents, theft, vandalism and others.

###### *b) A description of the impact on time, value, quality; quantitative and qualitative analysis*

*The impact is on the quality of the construction as well as on the implementation period*

*Probability: rare.*

*Impact: average.*

*Classification: low risk.*

###### *c) When the risk is likely to occur*

At each stage during the execution of the construction.

d) *Description of possible measures (avoidance, retention, reduction, transfer)*

The possible measure to mitigate the impact of this risk is by timely submission of the necessary design documentation for damage adjustment (if necessary), timely review and evaluation of the receipt for inadequacies and/or inaccuracies, timely action of the EPC Contractor. Maintain immediate working relationship of cooperation. Maintain effective communication.

e) *Entity bearing the consequences of the risk*

Client, EPC Contractor.

f) *Entity responsible for risk management*

Owner's Engineer.

**Risk: Loss /damage/ delay of goods during transportation**

a) *Description of the causes*

There may be events such as loss / damage / delay of goods during transportation, which may have an impact on the term of construction, but also on contingencies and unforeseen costs. However, it is necessary for the EPC Contractor or the Line Pipeline Supplier to justify and prove that the event in question will necessarily lead to an extension of the duration of the contracts.

b) *A description of the impact on time, value, quality; quantitative and qualitative analysis*

The impact is on the timing and value of the project.

Probability: rare.

Impact: significantly.

Classification: medium risk.

c) *When the risk is likely to occur*

During the execution of the construction.

d) *Description of possible measures (avoidance, retention, reduction, transfer)*

This risk should be constantly monitored. Overcoming measures are expressed in the preparation and submission by contractors of individual contracts of detailed time schedules (schedules) for the execution of works, and the risk of occurrence of such events should be constantly monitored and the programs updated accordingly.

e) *Entity bearing the consequences of the risk*

Client, EPC Contractor or Line Pipe Supplier.

f) *Entity responsible for risk management*

Owner's Engineer , together with the EPC Contractor and/or the Line Pipe Supplier.

**Risk: Unforeseen conditions of the site or terrain, including archaeological findings**

a) *Description of the causes*

It is possible that unforeseen conditions of the site or terrain may occur during construction, including archaeological finds, which may lead to a delay in the timing of the ongoing activities. This delay may be due to poor management of the information flow from the party from which it is

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expected to receive the necessary information, poor organization, understatement or neglect of the relevant procedures, poor communication, but may also be due to a lack of necessary information.

b) *A description of the impact on time, value, quality; quantitative and qualitative analysis*

*The impact is on time and quality.*

*Probability: rare*

*Impact: average*

*Classification: low risk*

c) *When the risk is likely to occur*

At each stage during the execution of the construction.

d) *Description of possible measures (avoidance, retention, reduction, transfer)*

The possible measure is to reduce the impact of risk by maintaining frequent working relationships and contacts with competent authorities and / or performers of related activities as well as by timely submission of a request for the necessary information.

e) *Entity bearing the consequences of the risk*

Client, EPC Contractor.

f) *Entity responsible for risk management*

Mainly the Owner's Engineer team with the assistance of the EPC Contractor, the Authorized Authorization Supervisor of the Technical Design in Bulgaria, the Author of the Full End Engineering Design (FEED) documentation in Greece.

***Risk: Technological /design/ hidden deficiency of construction activities or materials***

a) *Description of the causes*

It is possible to feel a technological / design / hidden deficiency of construction activities or materials to achieve the results of the public procurement during the construction process. The reasons may lie in both the late submission of a request to provide the necessary information and the lack of an adequate assessment of the information received, delays in its provision, poor communication, and so on.

b) *A description of the impact on time, value, quality; quantitative and qualitative analysis*

*The impact is on the quality of the construction as well as on the term of the contract.*

*Probability: rare.*

*Impact: average.*

*Classification: low risk.*

c) *When the risk is likely to occur*

At each stage during the execution of the construction.

d) *Description of possible measures (avoidance, retention, reduction, transfer)*

The possible measure to mitigate the impact of this risk is by timely submission of a request to provide the necessary information, a timely review and evaluation when it is received on its sufficiency. Maintaining a direct working relationship of cooperation with the sources of the necessary information. Maintain effective communication.

e) *Entity bearing the consequences of the risk*

Client, the design team of the EPC Contractor, the Design Supervisor of the Technical Design in Bulgaria, the Author of the Front End Engineering Design (FEED) documentation in Greece.

f) *Entity responsible for risk management*

Mainly the Owner's Engineer team with the assistance of the design team of the EPC Contractor, the Design Supervision of the Technical Design in Bulgaria, the Author of the Front End Engineering Design (FEED) documentation in Greece.

**Risk: Shortage of construction funding**

a) *Description of the causes*

It is possible that changes in the contractual terms and conditions of financing, including a shortage of the construction budget, may occur during construction. These may be due to a change in the conditions of the European Energy Program for Reconstruction or for any other reason.

b) *Description of the impact on time, value, quality; quantitative and qualitative analysis*

The impact is on time and quality.

Probability: rare

Impact: significantly

Classification: medium risk

c) *When the risk is likely to occur*

At each stage during the execution of the construction.

d) *Description of possible measures (avoidance, retention, reduction, transfer)*

The possible measure is to reduce the effect of risk by providing a backup option for crEPCt.

e) *Entity bearing the consequences of the risk*

Client.

f) *Entity responsible for risk management*

The risk should be controlled by the Client and the Owner's Engineer . In this respect, each of the Client's and Owner's Engineer 's team is required to assume their responsibility and perform the necessary activities to achieve the objectives of the Project.

**Risk: Health, safety and environmental damage**

a) *Description of the causes*

It is possible that damage to health, safety and the environment may occur during construction. The reasons for this may be different - failure by the Contractor to comply with the requirements of the Client for health, safety, security and environmental management during the implementation of the activities stipulated in the Construction Contract and the applicable legal provisions, but not exclude other reasons.

b) *A description of the impact on time, value, quality; quantitative and qualitative analysis*

Impact on the life and health of any person under the threat of avoidable death, injury or harm; loss or damage to the property of the Contracting Authority or the ownership of another third party, whether that property is part of the Project facilities or otherwise.

Probability: rare

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Impact: average

Classification: low risk

c) *When the risk is likely to occur*

At each stage during the execution of the construction.

d) *Description of possible measures (avoidance, retention, reduction, transfer)*

The possible measure to reduce the effect of this risk is through the compliance of the EPC Contractor with the Health, Safety, Security and Environmental Obligations set forth in the Construction Contract and the applicable legal provisions as well as the necessary procedures for implementation of health, safety, security and environmental regulations and reporting and addressing issues related to health, safety, security and environmental protection, good planning and construction on the part of the EPC Contractor, to avoid any safety concerns during the construction and that the statutory safety requirements and safety practices are applied. Maintain immediate working relationship of cooperation. Maintain effective communication.

e) *Entity bearing the consequences of the risk*

Client, EPC Contractor.

f) *Entity responsible for risk management*

Owner's Engineer and Construction Supervision under Art. 168, para. 1, item 4 of the Spatial Development Act for the requirements for healthy and safe working conditions for the Bulgarian territory.

***Risk: Delay in the delivery of line pipes (which has an impact on costs), increase in the cost of raw materials for line pipe production and/or the cost of their transportation***

a) *Description of the causes*

During the implementation of the project, there may be reasons for a delay in the delivery of the line pipes, an increase in the cost of the raw materials for the production of the line pipes and/or the costs of transporting the pipelines leading to additional and/or unforeseen costs. It is necessary to analyze in detail the reason for the occurrence of these costs, to examine the contract documents and to determine the party that will accept this risk, most often the Contracting Authority. It is the responsibility of the OE to investigate and certify the reason for the occurrence of such costs and the veracity of the evidence provided by the participants in the process. These additional costs may arise due to poor organization of the EPC Contractor or the Line Pipeline Supplier, which should be controlled by the OE and proactively inform the Client of possible problems, by looking for ways to overcome them through work meetings, provision from the EPC Contractor or from the Line Pipe Supplier, respectively, of measures to catch delays, analysis of the implementation schedule and financial plan, and their updating, identification of problems, etc.

b) *A description of the impact on time, value, quality; quantitative and qualitative analysis*

*The impact is on time and quality.*

*Probability: rare*

*Impact: significantly*

Classification: medium risk

c) *When the risk is likely to occur*

At each stage during the execution of the construction.

d) *Description of possible measures (avoidance, retention, reduction, transfer)*

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The risk can not be avoided, additional and/or unforeseen costs during the execution of the construction, related to the delay in the delivery of the line pipes (which has an impact on the costs), the increase in the cost of the raw materials for the production of the line pipes and/or the cost of line pipes transportation may be. Mitigation measures can be expressed in the rapid handling of any changes that should be included in the program of the EPC Contractor, all parties taking action to mitigate the effects of these changes.

Risk is not appropriate to be adopted - requires additional funding.

The risk should be shared and controlled - between all participants, in separate contracts and at each work meeting.

In this respect, each member of the Client's, the Owner's Engineer 's, the EPC Contractor's and the Line Pipeline Supplier's team must assume their responsibility and perform the necessary activities to minimize the consequences of the risk and achieve the objectives of the Project.

There is a likelihood of an increase in costs and a change in the budget framework of the project, which should follow a detailed justification. This may be done on the basis of evidence provided by the EPC Contractor and the Line Pipeline Supplier certifying that the additional and/or unforeseen costs incurred are absolutely necessary and binding for the successful implementation of the project and are not caused by a bad organization or incompetence. The OE should examine and accept the submitted documentation and present it with an appropriate explanation to the Contracting Authority.

e) *Entity bearing the consequences of the risk*

Client.

f) *Entity responsible for risk management*

Mainly the Owner's Engineer , with the assistance of the EPC Contractor and the Line Pipe Supplier.

***Risk: Land acquisition issues (delays in acquisition, limitation of rights)***

a) *Description of the causes*

The causes of land ownership problems (delay in acquisition, limitation of rights) are the lack of coordination and effective cooperation between parties within the project, and can be many and diverse in their origin, nature and objectives:

- Lack of clearly defined goals;
- Lack of resource provision;
- Lack of adequate environment;
- Lack of appropriate tools;
- Lack of motivation;
- Others.

Weaknesses in this direction are expressed by intentions, actions or inactions of one of the participants in the land acquisition process that are not in sync at time, place and/or resources with the development, progress and status of the other participants and/or of the whole project.

b) *A description of the impact on time, value, quality; quantitative and qualitative analysis*

*The impact is first and foremost on quality, and if the problems of bad co-operation are deepened, it can also affect the duration of the contract.*

*Probability: rare*

*Impact: significantly*

*Classification: medium risk.*

*c) When the risk is likely to occur*

At each stage of project implementation.

*d) Description of possible measures (avoidance, retention, reduction, transfer)*

The risk is not suitable to be accepted - it requires large reserve resources, mostly from time to time.

The risk should be managed in order to be reduced and controlled within acceptable limits. The OE will establish a professional working relationship with the Client's team and other parties in the project by regularly submitting information, organizing work meetings, managing meetings, drafting statements of a different nature, presenting reports, etc. In turn, the Client's team should assist the OE in fulfilling its obligations by submitting the requested information in a timely manner, helping to achieve effective cooperation between the parties involved in the project, etc.

*e) Entity bearing the consequences of the risk*

Client.

*f) Entity responsible for risk management*

Owner's Engineer

***Risk: Force Majeure/Continuous Force Majeure ("FM")***

*a) Description of the causes*

Unforeseen circumstances are considered to be force majeure, they hide unsurmountable power, have arisen in the process of construction execution and can not be foreseen, which means that they can not be prevented by a party responsible for the fulfillment of the condition. Examples of force majeure are the following: natural disasters (floods, fires, earthquakes, etc.) that make delivery and/or performance impossible; severe turmoil in economic, political and social life (revolutions, couples, blockades, embargo as a result of these events, national strikes), etc. These circumstances may delay the construction or make it impossible in whole or at a certain stage of its realization.

From our practice, we can conclude that "unforeseen circumstances" are those that an experienced contractor was unable to predict during the preparation of his bid.

*b) A description of the impact on time, value, quality; quantitative and qualitative analysis*

*The impact is first and foremost on time, and when problems are exacerbated, impact can also affect quality.*

Probability: rare

Impact: significantly

Classification: medium risk

*c) When the risk is likely to occur*

At each stage of construction performance.

*d) Description of possible measures (avoidance, retention, reduction, transfer)*

After examining the reasons for the occurrence of the circumstance and the effect it has on the term of performance of the contract, the OE will express an statement on how far this impacts the deadline for implementation and whether there is any reason to increase the completion time. The implementation schedule planned by the EPC Contractor is used, and this schedule deals with the

impact of the occurrence associated with the occurrence of "unforeseen circumstances". Analyze the modified schedule and determine the actual change in the completion date of the works.

It is possible, however, that "unforeseen circumstances" have an impact on activities that are not on the critical path, will not lead to an increase in completion time. In this case, the OE will advise the Client and, upon receiving his consent, will inform the Contractor that the date of completion will remain unchanged.

However, whenever unforeseen circumstances arise, the OE will require the EPC Contractor to take measures to limit the effect of unforeseen circumstances on the schedule of the project.

*e) Entity bearing the consequences of the risk*

Client.

*f) Entity responsible for risk management*

Mainly Owner's Engineer , with the support of EPC Contract

The risk can be avoided by selecting key experts, organizing and motivating the EPC Contractor's and the Line Pipeline Supplier's teams.

Risk is inappropriate for adoption - it requires large reserve resources, mostly from time and finances.

The risk should be controlled - by the OE for each of the activities and tasks of this procurement and at each workshop.

*g) Entity bearing the consequences of the risk*

Client.

*h) Entity responsible for risk management*

Mainly the Owner's Engineer , with the assistance of the EPC Contractor and the Line Pipe Supplier.

***Risk: Lack of performance (including late delivery of line pipes, delay in connections, delay in issuing of licenses for which the EPC Contractor and Line Pipe supplier are responsible)***

*a) Description of the causes*

The prerequisites for a lack of performance (including late delivery of line pipes, delays in connections, delays in issuing licenses for which the EPC Contractor and Line Pipe supplier are responsible) may be of a different nature, namely :

- inadequate technical provisions and security;
- the workload of the employees of the EPC Contractor and the Line Pipe Supplier with tasks, which would prevent their effective inclusion in the construction process;
- individual members of the EPC Contractor's and the Line Pipe Supplier's teams, are not available to perform the tasks and activities of this procurement;
- assigning unexpected and unplanned urgent tasks to the employees, resulting from external requirements (EU, Greek and/or Bulgarian authorities);
- loss of qualified resource;
- inadequate personal training of the employees of the EPC Contractor and the Line Pipe Supplier.

The risk is directly proportional to the number of experts and inversely proportional to the experience of the experts.

*b) Description of the impact on time, value, quality; quantitative and qualitative analysis*

The impact is mainly on the timing and, in the event of a lack of performance (including late line pipes supply, delays in connections, delays in issuing licenses for which the EPC Contractor and Line Pipe supplier are responsible), impacts can also affect quality.

Probability: rare

Impact: significant

Classification: medium risk

*c) When the risk is likely to occur*

At each stage of construction performance.

*d) Description of possible measures (avoidance, retention, reduction, transfer)*

The risk can be avoided by selecting key experts, organizing and motivating the EPC Contractor's and the Line Pipe Supplier's teams.

Risk is inappropriate for adoption - it requires large reserve of resources, mostly from time and finances.

The risk should be controlled - by the OE for each of the activities and tasks of this procurement and at each work meeting.

*e) Entity bearing the consequences of the risk*

Client.

*f) Entity responsible for risk management*

Mainly the Owner's Engineer, with the assistance of the EPC Contractor and the Line Pipe Supplier.

**Risk: Lack of performance by the supplier (including non-payment)**

*a) Description of the causes*

The prerequisites for a lack of performance by the supplier (including non-payment) may be of a different nature, namely:

- inadequate technical security and security;
- load of the employees of the Line Pipe Supplier with tasks, which would prevent their effective inclusion in the construction process;
- individual members of the Line Pipe Supplier's team are not available to perform the tasks and activities of this procurement;
- assigning unexpected and unplanned urgent tasks to the employees, resulting from external requirements (EU, Greek and/or Bulgarian authorities);
- loss of qualified resource;
- inadequate personal training of the employees of the Line Pipe Supplier.

The risk is directly proportional to the number of experts and inversely proportional to the experience of the experts.

*b) A description of the impact on time, value, quality; quantitative and qualitative analysis*

The impact is first and foremost on the time, and when the problems of lack of implementation (including non-payment) are deepened, the impact can also affect quality.

*Probability: rare*

Impact: significant

*Classification: medium risk*

c) *When the risk is likely to occur*

At each stage of construction performance.

d) *Description of possible measures (avoidance, retention, reduction, transfer)*

The risk can be avoided by selecting key experts, organizing and motivating the Line Pipe Supplier.

Risk is inappropriate for adoption - it requires large reserve resources, mostly from time and finances.

The risk should be controlled - by the OE for each of the activities and tasks of this procurement and at each work meeting.

e) *Entity bearing the consequences of the risk*

Client, EPC Contractor.

f) *Entity responsible for risk management*

The risk should be controlled primarily by the Contracting Authority and the Owner's Engineer , with the assistance of the Line Pipe Supplier.

### 2.3.3. Logistics

The detailed description of the logistics for the implementation of the whole project is given in paragraph 2.1.3 of this Technical Proposal. To avoid iterances, here we comment on the logistics required to carry out construction supervision activities.

As already commented, the OE has offices in the territories of Bulgaria and Greece with excellent working conditions, enough working space for all experts and equipped with modern and professional equipment.

During construction, the OE will base its project team on the construction site. The EPC Contractor will provide access to the construction site of the OE team. EPC Contractor will provide offices on construction sites (premises and equipment) for the Client, including the staff of OE in place, will be responsible for paying all costs associated with the rental of land, construction and installation, separation of adjacent areas, utilities, etc., as well as for the entire maintenance and operation of the aforementioned sites for the time of construction, including their removal after completion and the overall restoration of the land upon completion of the construction works.

The EPC Contractor will provide, maintain and service, using his own efforts and resources, the use of offices intended for work teams of

The EPC Contractor shall provide, maintain and service, using his own efforts and resources, the use of the offices intended for the working teams of the Client and the Owner's Engineer , in the Bulgarian and Greek sections, as follows:

➤ Greek section:

- an office on the entire length of the construction site in the Greek section of the pipeline and associated ground facilities during the execution of the construction contract until the issue of the Acceptance Certificate (for the relevant part, if applicable) under the construction contract ;



➤ Bulgarian section:

- one main office on the construction site during the execution of the construction contract until the issue of the Acceptance Certificate (for the relevant part, if applicable) under the construction contract and the permit of use for the Bulgarian section and
- additional offices on the construction site for the construction of each of the following ground facilities:
  - gas measurement station (GMS);
  - base for operation and maintenance;
  - two automatic gas control stations (GCS), separated one (1) month prior to the commencement of the respective construction activities and available until the issue of the Acceptance Certificate for the Works under the construction contract or other relevant part (if applicable).

The OE will monitor the changes in Bulgarian, Greek and EU legislation that may affect the implementation of the project by informing the Contracting Authority of the consequences arising from these changes related to the implementation of the project as the knowledge of the Bulgarian and Greek legislation requirements as well as the EU normative documents, is of the utmost importance for the realization of the project for the construction of "Greece-Bulgaria Natural Gas Interconnector". In this case the OE is constantly monitoring the information related to the project requirements.

During the construction period, the OE will monitor the timely execution of the activities, services and supplies according to the applicable timetable and, if necessary, advise and propose the necessary corrective actions to rectify any delay that may arise during the implementation of the contracts with Suppliers.

In addition, the OE will monitor the identification of key elements of critical equipment that have a long lead time, intense development requirements, high costs, sophisticated technology, high pressure, and difficult logistics requirements, etc. to avoid delay.

Vehicles during the execution of the Construction Contract until the issuance of the Acceptance Certificate and the Permission to Use will be provided by the EPC Contractor, and he will also bear the costs of acquiring the vehicles, insurance, road tax, road assistance, fuel, maintenance and service, as well as providing adequate parking space for vehicles in the area of the construction site offices.

The main resource for the project implementation is the specialists that the OE will provide for the contract execution. The OE has proposed the positions of key and non-key experts, specialists who meet the requirements of the Contracting Authority in the documentation for participation in the open tender procedure.

It is envisaged the use of non-key experts who will actively support, organize and contribute on a daily basis for the efficiency of the work, the main expert staff.

The OE will provide available company resources to support the local project team, as intensive as may be required for a project.

The OE team members will be mobilised as per the project requirement and progress of work respecting the EPC Contractor schedule (delivery date of material such as valves, insulating joints, fittings, pipes, ...) and the delivery date of the pipelines. As the schedule of the EPC Contractor is not known, the Mobilization Plan has been built based upon our scope of work understanding and experience of similar project.

The following assumptions has been taken:

- Delivery of the pipeline on site by the client: 9 months after the contract award.

- Delivery of the material on site by the EPC Contractor: 16 months after the contract award

Below, the proposed mobilization plan for the fieldworks supervision activities.

Position	Month of mobilization (T+XX month)	Mobilization duration (month)
Construction Manager (Head of Fieldwork supervision)	T <sub>0c</sub> +6	16M
Deputy FS Manager	T <sub>0c</sub>	25M
Pipeline Inspector 1	T <sub>0c</sub>	25M
Pipeline Inspector 2	T <sub>0c</sub> +8	17M
Special PL crossing (HDD/Boring) Inspector	T <sub>0c</sub>	25M
Civil/Structure Inspector	T <sub>0c</sub>	25M
Mechanical/Piping Inspector	T <sub>0c</sub> +6	19M
Elec/Instrumen & Scada Inspector	T <sub>0c</sub> +6	19M
Commissioning Manager	T <sub>0c</sub> +22	3M
Land Acquisition/RoW activities: Bulgarian	T <sub>0c</sub>	10M
Land Acquisition/RoW activities: Greek	T <sub>0c</sub>	9M
TPI Field Construction Inspector (Greek Part)	T1	5+2M
Head of QA/QC & Material Inspection	T <sub>0c</sub>	25
TPI Field Construction Inspector (Bulgarian Part)	T1	20M

T<sub>0c</sub> = Start construction (start of Phase 2)

T1= Pipeline Delivery on site = T<sub>0c</sub>+6

The OE is convinced that the proposed and available resources are sufficient to meet the requirements of this project, specifically for the implementation of the construction supervision activities and to contribute positively to the project realization within its budget and timeframe.

*2.3.4. Personnel organization - division of functions and assignment of tasks, including the involvement of local expertise in investor control (both for the Bulgarian and for the Greek part)*

The main resources for the implementation of the construction supervision activities are the specialists that the OE will provide for the contract execution. The OE has proposed for the individual positions experts and specialists who fully meet the requirements of the Contracting Authority in the documentation for participation in the open procedure for the award of the public procurement contract. The OE team will include the following items:

1. Project manager;
2. Head of the QMS;
3. Head of the HSSE;
4. Project management services manager;
5. Engineering Design Manager;
6. Construction supervision supervisor;

7. Head of QA/QC and inspection of materials;
8. KE Independent Inspector 1;
9. KE Independent Inspector 2;
10. Non-key experts.

In order to carry out the construction supervision works, the Owner's Engineer will also provide non-key experts who will assist the OE's team of the site if necessary to efficiently carry out the project work. The non-key expert team will be available to the Team Leader according to the specifics and the Project Implementation Plan.

The overall responsibility for the day-to-day implementation of the project is the Project Manager, who will be available for the entire duration of the Owner's Engineer's contract.

We consider as advantage the clear division of responsibilities and tasks among each of the experts we offer. The tasks to be performed are allocated according to the competencies of the experts in similar large-scale projects. The OE envisages the introduction of a team organizational structure in which the lines of communication and interaction are clearly and precisely defined. The organizational structure of the OE team is addressed in detail in point 3 of this Technical Proposal, which describes the distribution of functions and the allocation of tasks.

#### **Allocation of tasks and responsibilities**

For efficiency and effectiveness, we will share the functions and responsibilities between the experts in a way that ensures the harmony and integrity of the process. On the basis of the distribution of functions and responsibilities among the members of the Assigning team designated to carry out project activities, a system of control over the current performance of the activities of the individual members will be established, guaranteeing to the highest degree the successful accomplishment of the assigned tasks and functions. The control will be combined with immEPCate communication between the Client's team and the ECteam, aiming at maximizing the results of the assigned tasks and their timely completion.

Activities and tasks of Owner's Engineer (IC)	Responsible expert from the OE team
during construction	
General responsibilities of the Owner's Engineer during construction	Project manager;
The Contractor of the EPC and the Line Pipe Supplier to adhere to the Project Timetable	Project management services manager;
All construction work carried out by the Contractor of the EPC is in full compliance with the Construction Contract	Construction supervision;
All construction work performed by the Contractor of the EPC is of the required quality	Non-key experts
All work performed by the EPC Contractor (including subcontractors) is performed in accordance with the applicable normative documents, standards and specifications	Project manager;
All delivered line pipes meet the specified quality and quantity, in accordance with the provisions of the Contract for Line Pipes Supply and the Project Schedule	Project management services manager;
Any and all changes/contractual variations in the EPC assignment are fully substantiated and supported by arguments	Construction supervision
All material and test inspections related to the work of the EPC Contractor and the components of the pipeline system have been properly performed and fully documented	Head of QMS;

Drawings and documents are available on the site in "as-built" version	Construction supervision
Mechanical completion is achieved when the EPC Contractor offers	Head of QA/QC and Material Inspection
Preparations for start-up work have been completed	Project manager;
Preparations for commissioning have been completed	Construction supervision;
All tests, checks and samples have completed satisfactorily	Non-key experts
Review the EPC Contractor's documents of the special processes that will be subject to qualification. Present in the qualification of these processes. Control of Welding and Welding Procedures for Welders	Head of QMS;
Prepares control plans that match the activities of the EPC Contractor. Document all control activities and findings by using control sheets for specific activities and locations	Construction supervision;
Provides on behalf of the Client timely performance of the contractor's reversal of the Contractor's activities as provided for in the Construction Agreement or takes a different approach to the process	Head of QA/QC and Material Inspection
Carries out all oversight activities in respect of the main results to be confirmed to the Contracting Authority that the construction progresses correctly in the direction of acceptance of the construction	Project manager;
Overview of the construction organization of the EPC Contractor's, coordination procedures, workforce plans and schedules	Project management services manager;
Overview of the delivery plan of the Line Pipe Supplier - Production, Testing, Transport, Storage	Construction supervision
Observes the allocation of building resources, taking into account the respective priorities for compliance with the Project's construction program, and recommends appropriate corrective actions when a shortage of resources may interfere with the project's program	Head of QMS;
Observe planned and actual deliveries of site equipment and materials, handling, storage, maintenance and installation of equipment and materials	Construction supervision;
Monitor and inspect construction works performed by the Contractor of EPC or subcontractors to ensure that such activities are conducted in accordance with design specifications, issue certificates (for Bulgarian section - and signed acts on behalf of the Client), if necessary and that the work carried out complies with the relevant quality standards; the certificates issued by and on behalf of the Contracting Authority are those provided for the EPC Contractor and Line Pipe Supply and/or assigned to the Assignment. For the avoidance of doubt, certificates of activities issued by the Company and/or OE are complementary and not waive the obligation to implement the Ordinance № 3 of 31.07.2003 on drawing up acts and protocols during construction on Bulgarian territory	Head of QA/QC and Material Inspection;
Regularly performs an on-site inspection of the construction work of the Contractor for an EPC	KE Independent Inspector 1;
Plans presence of inspectors (see paragraph. 9.4 and 9.5 of this document) during important tests of basic equipment, including factory acceptance tests (FAT), and conduct a more detailed inspection, when it considers it necessary and issue certificates, if necessary	KE Independent Inspector 2
Review and audit of the drawings to the construction site according to the procedure for reviewing the drawings to make sure that you use the latest approved versions, including a review of additional design modifications and the construction site of the project	Construction supervision
Monitors and audits the progress of the site's EPC Contractor's activities against the Project's schedule for the Contracting Authority's needs using information provided by the EPC Contractor and information obtained through an independent inspection; reports to the Contracting Authority all	Head of Engineering Design

existing or potential delays and recommends actions to correct these delays. The OE ensures that the planning, control and reporting procedures are followed	
Provides quality in construction, through selective review of installations, attendance at inspections and auditing of test and inspection protocols	Project manager;
Assist Client in troubleshooting. Provides consultations on all claims by contractors and when making claims for change/contractual variations and issues technical advice and recommendation to the Contracting Authority	Project management services manager;
Ensures that all necessary insurances for the Project are in force	Construction supervision
Health, safety, security, environment during construction	
Review of the EPC Managing Authority and Plans of the EPC Contractor and the Line Pipe Supplier	Project manager;
An overview of the HSSE procedures of the EPC Contractor and the Line Pipe Supplier. Verification that the proposed procedures meet the required standards as defined by the Contracting Authority's requirements and Good Engineering Practice	Head of OSHB
Monitoring whether the requirements of the management, plan and procedures for HSSE are met by the EPC Contractor and Line Pipe Supplier	Project manager;
Immediate notification of any discrepancies that the OE establishes	Head of OSHB
Requirement for emergency safety measures to be taken by the EPC Contractor and/or Line Pipe Supplier when required and established	Project manager;
Monitoring compliance with studies provided to authorities, including, without limitation, environmental impact studies of both territories - in Bulgaria and Greece - and a safety plan	Head of OSHB
Verification and signature on behalf of the Contracting Authority of any HSSE document as required by the applicable law. For the Bulgarian section these functions are performed taking into account the functions of the Construction Supervision under Art. 168, para. 1, item 4 of the SDA	Project manager;
Assistance to the Contracting Authority when monitoring the EPC Contractor for compliance with environmental requirements	Head of OSHB
Quality assurance / control during construction	
on the duties of Owner's Engineer (EC)	
Document Control	Head of QMS;
Record controls	Construction supervision
Communication	Head of QMS;
Quality control of products	Construction supervision
Monitoring, reporting and reviewing progress	Head of QMS;
Internal audits	Construction supervision
Monitoring and measurement of processes	Head of QMS;
Data analysis	Head of QA/QC and Material Inspection;
Improving the efficacy of the QMS	Construction supervision
Meetings	Project manager;
Reporting	Project management services manager;
on the obligations of the EPC Contractor and the Supplier of Linear Pipes	Head of QMS;
Audit	Head of QA/QC and

	Material Inspection;
Tests	Construction supervision
List of defects to remove	Project manager;
Checks and Testing by Third Parties and Owner's Engineer	
Independent Inspector Coordination and Reporting	Construction supervision; KE Independent Inspector 1;
Plant Inspection of the Line Pipeline Supplier for the Project	KE Independent Inspector 2
Field tests on Greek territory	Construction supervision
Field inspections during the construction of the pipeline on Bulgarian territory	KE Independent Inspector 1;
<b>Supervision of obtaining construction permits, communication with Building Supervision, activities on obtaining a loan / establishing a right of easement for passing</b>	
<b>Construction permit activities assigned to the EPC Contractor:</b>	
<ul style="list-style-type: none"> <li>• With regard to approvals already received for passing:</li> <li>• Water bodies (rivers, lakes, irrigation and drainage sewers);</li> <li>• Roads and railway infrastructure;</li> <li>• Infrastructure and equipment owned by third parties - telecommunication and power cables and other infrastructure, and</li> <li>• Water collection and discharge points for hydraulic pipeline tests.</li> </ul>	Project manager;
<ul style="list-style-type: none"> <li>• Receiving permits for:</li> <li>• Temporary storage areas for pipes and equipment.</li> </ul>	Construction supervision
Communication with Construction Supervision	Project manager;
Land acquisition/right of way activities	Construction supervision
<ul style="list-style-type: none"> <li>• On Bulgarian territory</li> <li>• Interaction between the EPC Contractor and affected landowners / users</li> <li>• Reporting to the Client on the Compensation Process.</li> </ul>	Construction supervision
<ul style="list-style-type: none"> <li>• On Greek territory</li> <li>• Assistance to the District Commission (on behalf of the Contracting Authority) in the preparation of draft decisions for calculating the amounts for lost crops, based on the determined unit prices.</li> <li>• The Zone of Enabling Right available on behalf of the Client, including contacts with landowners and authorities to make payments for lost crops.</li> <li>• In the case of a court appeal by a land owner (if any), provides technical support to the Contracting Authority and</li> <li>• Preparation of monthly reports on the status of total payments to owners and land users.</li> </ul>	
<b>Other activities at the discretion of the Owner's Engineer</b>	
Interaction with Designer Supervision in accordance with the Spatial Development Act (SDA) in Bulgaria	Construction supervision; Head of Engineering Design
Interaction, if necessary, with competent authorities to comply with the requirements of the legislation in Greece and Bulgaria	Project manager; Construction supervision supervisor

Organizing monthly meetings	Project manager; Project management services manager; Construction supervision Non-key experts
Keep archive	Construction supervision Non-key experts
Conduct control of changes during construction when need arises	Project manager; Engineering Design Leader; Construction supervision

### Plans and systems

Throughout the entire implementation period, the OE is committed to developing various plans and systems to facilitate the process of controlling the various activities carried out by Project participants. During construction, the Document Management System will also be used. For the construction period, the OE will complement and/or use the following plans and programs:

Table: Plans and systems to be complemented and/or used by the Owner's Engineer in the performance of the construction supervision activities

No	Type of plan/system	Content	Responsible expert from the Owner's Engineer team
1	Control plan	Prepared to match the EPC Contractor's activities. Document all control activities and findings by using control sheets for specific activities and locations.	Head of QMS; Head of QA/QC and Material Inspection; Construction supervision KE Independent Inspector 1; KE Independent Inspector 2
2	Workforce Plan	The OE is reviewing this plan. It is part of the organization of the construction of the EPC Contractor.	Construction supervision
3	Delivery plan	The OE is reviewing this plan. Contains organization of supply of linear pipes - production, testing, transport, storage.	Head of QA/QC and Material Inspection; Construction supervision; KE Independent Inspector 1; KE Independent Inspector 2
4	Test and Inspection Plans	Includes all related activities with respect to the relevant contracts and applicable specifications. The test and inspection plan shall include all necessary activities to ensure the consistency of all activities and the delivered goods with the project specifications - Contracts with Suppliers, specifications, etc. and the requirements of the legislation and the permits.	Construction supervision KE Independent Inspector 1; KE Independent Inspector 2
5	Safety Management Plan	Prepared by the EPC Contractor to comply with its requirements and procedures applicable to the construction site. The OE reviews it.	Head of the HSSE
6	Audit plan for the work of the two contractors	Takes account of the various aspects of the Project, the places where the work will be carried out, and also includes subcontractors and suppliers of the EPC Contractor and the Line Pipe Supplier, if any.	Head of QMS; Head of QA/QC and Material Inspection

7	Quality plan	Determines quality control. The OE reviews this plan.	Head of QMS; Head of QA/QC and Material Inspection; KE Independent Inspector 1; KE Independent Inspector 2
8	HSSE Plan	Includes Health and Safety Requirements for work on Bulgarian territory, as well as implementation of the plans for environmental protection in accordance with the prescriptions in the EIA permits in the two countries - Greece and Bulgaria. The OE reviews this plan.	Head of the HSSE
9	Plan for the implementation of activities and/or services	Sequence of performance of the activities and/or services and supplies of Equipment under the relevant schedules.	Project manager; Project management services manager; Construction supervision
10	Initial Schedule of the Project / Program	Contains the contract activities of the OE that the initial schedule of the Project/Program is reviewed and commented upon until its final approval by the Contracting Authority. It shall be prepared taking into account the expected commencement of the two main contracts of the Project - the Construction Contract and the Contract of the Line Pipe Supplier and their respective time schedules.	Project manager; Project management services manager; Head of Engineering Design; Construction supervision
11	Schedule of construction	Sequence of implementation of construction activities. The OE reviews this schedule.	Project manager; Project management services manager; Construction supervision
12	Schedule for final installation, transmission and commissioning of the Project	It identifies the Contractor's activities on final installation, start-up works and commissioning. The OE reviews this schedule.	Project manager; Project management services manager; Construction supervision
13	Material identification system	Tracking the materials to their respective documentation. The OE reviews this system.	Head of QA/QC and Material Inspection
14	Quality management system	Approved by the Contracting Authority. They will create and expand the quality management system and perform regular quality audits. Part of the quality management services include the management of collective and preventive activities during the implementation of the Project.	Head of QMS; Head of QA/QC and Material Inspection
15	Document Management System	It serves for document exchange and control through appropriate software, ensures appropriate communication channels, reporting and reconciliation levels and illustrates positions as well as vertical and horizontal relationships within the work team. It will also be used during construction.	Head of QMS; Project Management Services Manager

## Reporting

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Reporting by the OE will be done by preparing and presenting **reports on the activity carried out**. For the construction period, the OE will prepare and submit the following reports in electronic form and on paper:

Table: Types of reports to be prepared by the Owner's Engineer in the performance of the construction supervision activities

No	Report type	Content	Responsible expert from the Owner's Engineer team
1	Monthly reports	An overview of the state of play regarding the objectives of the Project, detailed information on the project contracts, progress of work and proposals for measures to reduce adverse impacts (if necessary) in relation to the Contractor, the Line Pipe Supplier and other Suppliers who have contractual relations with the ICGB for the Project, as well as the progress of the EC itself with a forecast report for the next 30 days outlining the main items for the next reporting period.	Project management services manager; Construction supervision supervisor
2	Reports on Completion/Delivery by the EPC Contractor	Prepared by the EPC Contractor for accepting the works. The reports include a recommendation for acceptance under the Construction Contract by the Contracting Authority and indicate the records in support of such a recommendation.	Project manager; Project management services manager; Construction supervision
3	Report on the HSSE	The OE monitors and reports to the Client, for the Contracting Authority's needs, on the adequacy and extent of compliance by the EPC Contractor to the Contracting Authority's requirements for health, safety, security and environmental management during the performance of the Contractor's activities.	Head of the HSSE
4	Audit reports	The OE audits the work of the EPC Contractor and the Line Pipe Supplier against the requirements of their respective contracts.	Head of QMS; Head of QA/QC and Material Inspection
5	Inconsistency reports	Prepared immediately after the discrepancy is detected.	Construction supervision KE Independent Inspector 1; KE Independent Inspector 2
6	Test reports	Contains the results of all tests and inspections.	Construction supervision KE Independent Inspector 1; KE Independent Inspector 2
7	Inspection reports	Contains the results of all inspections.	Head of Construction Supervision KE Independent Inspector 1 KE Independent Inspector 2
8	Monthly reports on the services performed by the independent inspector	Lists all inspection visits during the month, and for each such visit at least the following information shall be provided: - inspected items and issued certificates; - type of inspection carried out (give the item number as shown on the relevant	KE Independent Inspector 1; KE Independent Inspector 2

	checklist for the activities) and - man hours spent.	
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### **Registers**

Throughout the period of order execution, the OE has a commitment to prepare and/or maintain various registers to systematise important documents prepared by the Project participants. For the construction period, the OE will produce and/or maintain the following registers:

Table: Registers to be prepared and/or maintained by the Owner's Engineer when performing the construction supervision activities

<b>No</b>	<b>Type of registry</b>	<b>Content</b>	<b>Responsible expert from the Owner's Engineer team</b>
1	Register of technical issues	Every technical question is recorded and should have a unique identifier for tracking purposes.	Head of Engineering Design; Construction supervision
2	Audit Register	It serves to track discrepancies and corrective actions	Head of QMS; Construction supervision KE Independent Inspector 1; KE Independent Inspector 2
3	Register of certificates and reports	All reports and certificates are marked with unique consecutive numbers.	Head of QMS; Project management services manager; Head of Engineering Design; Construction supervision
4	Register of approved personnel performing inspections	Contains a list of approved inspection staff.	Head of QMS; Construction supervision KE Independent Inspector 1; KE Independent Inspector 2
5	A list of defects	It is an electronic list of defects for removal of the pipeline system, which reflects all defects, deficiencies, faults and inconsistencies with the requirements of the Construction Contract that are established during construction at any point in the pipeline system	Construction supervision KE Independent Inspector 1; KE Independent Inspector 2

#### **2.4. Supervision of commissioning and completion activities. Training**

According to the assignment, the commissioning of the gas pipeline system will take place in two parts:

- Start-up works aimed at verifying that the components and sub-systems of the gas pipeline system are properly installed and comply with the Construction Contract and operate in accordance with their intended purpose and certain functions and
- Commissioning, to prove that the systems are working properly, the gas pipeline system functions as an integrated unit in accordance with the Construction Contract and has the performance characteristics that are in line with the Construction Contract.

The OE will review and approve the procedures of the EPC Contractor for start-up and commissioning and will take part on behalf of the OE in preparing the start-up works and commissioning these activities before start, taking into account the regulatory framework the two countries - Greece and Bulgaria and the provisions of the Construction Agreement.

The OE will monitor the Contractor's activities during the start-up and commissioning operations to ensure their safe execution in accordance with the Construction Contract and the approved procedures.

The OE will coordinate the activities of the EPC Contractor both on start-up works and on activities during commissioning. These oversight activities will be performed by the OE's inspection staff and independent inspectors.

The OE will approve, on behalf of the Contracting Authority, any proposals from the EPC Contractor for tests during start-up and commissioning. The OE will approve, on behalf of the Contracting Authority, test requests during the start-up and commissioning operations only if it is satisfied that the test object is in compliance with the EPC Contract and that the proposed test can be conducted safely, without adversely affecting the other activities of the EPC Contractor. The OE ensures that the EPC Contractor will not test during the start-up and commissioning without the prior approval of the OE and the independent inspectors.

During start-up and commissioning, the OE will report the results of all tests and will keep the list of defects removed. Testing, debugging, and correcting activities included in the list of removal defects is the responsibility of the EPC Contractor.

The responsibility of the OE is to complete the list of defects for removal, to approve the volume of works from the list of defects to remove; presence during testing and start-up works, verification that the gas system is ready for commissioning or testing, if this is the case.

During the start-up and commissioning process, the OE performs in particular the following activities:

➤ **Surveillance of activities before commissioning**

- *Review of the start-up and commissioning procedures prepared by the EPC Contractor and the development of an exhaustive end-of-installation checklist identifying the Contractor's End-of-Site Assignment, Start-up and Release in service, as applicable:*

The contractor of the EPC will prepare procedures for start-up and commissioning. These procedures will include all equipment, subsystems, components and materials so as to ensure compliance with the specifications. The OE will draw up an exhaustive end-of-installation checklist identifying the Contractor's End-of-Site Assignment, Start-up, and commissioning activities

The OE will review the start-up and commissioning procedures. The purpose of these procedures will be to:

- Detailed design of the project where specified under the contract and performance;
- Ensuring functional compatibility;
- Complementing the approval and acceptance requirements for the equipment;
- Complementing the requirements for proof of reliability, repairability and safety.
- *Prepares, together with the EPC Contractor, a list of defects for removal, stating the unfinished activities on the construction site, during the final stages of completion, as specified in the relevant Contract:*

The OE will, together with the Contractor of the EPC, draw up a list of defects for removal that indicate the unfinished activities on the construction site during the final stages of completion as specified in the respective Contract. This list is an electronic register with defects in the removal of

the gas pipeline system, which will cover all defects, shortcomings, deficiencies and inconsistencies with the requirements of the Construction Contract which are established during construction at any point in the gas pipeline system .

- *Review of the final assembly, acceptance and commissioning schedule for the project to ensure that this allows efficient start-up of the gas pipeline system:*

The OE will review the schedule for the final assembly, acceptance and commissioning of the Project to ensure that this allows effective start-up of the pipeline system. This schedule will identify the Contractor's activities on final assembly, start-up and commissioning.

- *Physically check for compliance with the approved drawings and specifications of the inspection staff - buildings, pipelines, mechanical and electrical systems, control, measurement and automation systems, telecommunication systems and control systems as well as cathodic protection and associated facilities:*

In order to perform this check, the OE will review carefully approved drawings and specifications by the inspection staff.

The OE will periodically inspect the construction works - buildings, pipelines, mechanical and electrical systems, control, measurement and automation systems, telecommunication systems and management systems, as well as cathodic protection and its adjacent facilities, in order to determine whether the activities performed are compliance with the approved drawings and the specifications of the inspection staff, as well as the regulatory requirements in Bulgaria and Greece.

- *During the start-up works, attend all tests of equipment and systems; (together with the Independent Inspector on Greek territory in accordance with the terms of reference of the Independent Inspector), verifies the completeness and compliance with the requirements of the Test Documentation Project prepared by the Contractor of the EPC, certifies the successful completion specifications (in conjunction with the independent inspector's staff in Greek territory in accordance with the terms of reference of the independent inspector):*

The OE will participate with relevant experts to monitor whether the samples are being conducted in accordance with the contract and the regulatory framework. During the start-up works, the OE will be present on all equipment and system tests. Will review for integrity and compliance with test documentation requirements prepared by the EPC Contractor. The OE will certify the successful completion specifications, in conjunction with the independent inspectors. OE experts will analyze the results of the samples and give their opinion on the success of the samples. In case of unsuccessful samples, the OE will require the EPC Contractor to look up the issues and run the samples again.

To comply with the requirements of the Bulgarian legislation, the OE will be present in the unit and group tests and will participate in the work of the Commission to conduct a 72-hour test under operating conditions.

- *Ensures the startup of the Equipment in accordance with the operating instructions and setting and calibration during operation, etc. in accordance with the check list of the commissioning activities by engaging inspection staff (in conjunction with the independent inspector's staff in Greek territory in accordance with the independent inspector's assignment):*

The OE will make a detailed overview of the operating instructions of each Equipment. The OE will guarantee the start of the respective Equipment in accordance with these instructions and the setting and calibration at work, etc. in accordance with the check list of the commissioning activities, through the inspection staff, in conjunction with the independent inspectors.

If as a result of an inspection, test, measurement, or trial of any Equipment it proves to be defective or otherwise does not comply with the Agreement, the OE may refuse this Equipment by giving a

message to the EPC Contractor and giving reasons. After that, the EPC Contractor must immediately correct the defect and ensure that the rejected is in compliance with the Agreement. If OE requests Equipment to be retested, samples must be repeated within the same timeframe and under the same conditions. If rejecting and re-testing causes the Contracting authority to incur additional costs, the Contractor of the EPC must pay these costs to the Contracting Authority.

- *Inspect all elements of the gas pipeline system at the time of their submission by the Contractor for the acceptance, review and agree list of exemptions and issue Taking over certificates:*

The OE will inspect all elements of the gas pipeline system at the time of submission by the Contractor for the EPC for acceptance. The OE will review and agree on a list of exceptions and issue Taking over certificates.

- *Checks whether the EPC Contractor closes the work in progress, if any, in accordance with the agreed timetable, without hindering the commissioning and initial operation of the pipeline system:*

Before the commissioning of the gas pipeline system, the OE will make sure that any remarks, defects and unfinished or poorly executed work, if any, are removed and do not hinder the commissioning and initial operation of the gas pipeline system.

- *In the event of any defects or problems encountered during commissioning, notify the EPC Contractor and receive acceptable suggestions for remedial action:*

If defects in completed work or problems during commissioning are detected during commissioning, the OE will notify the EPC Contractor to indicate the type of each defect and its exact location, as well as specific actions to remove the the detected defects. The notice will specify a timeframe within which the defects found should be removed by the EPC Contractor.

- *Monitor the checking and calibration of the instrumentation and systems used in commissioning and conducting gas pipeline system/component testing by designating inspectors (in relation with the independent inspector's staff in Greek territory in accordance with the independent inspector's assignment):*

OE through its experts will perform the necessary inspections of the executed works. The OE will monitor the calibration and check of the instrumentation and systems used in the commissioning and testing of the pipeline system/components in which independent inspectors will also participate. The OE will attend all the functional tests and will sign the test certificates. For this purpose, a final assembly, acceptance and commissioning schedule will be prepared, identifying the Contractor's end-of-life installation, commissioning and commissioning activities. This timetable will ensure that all instrumentation and systems used in commissioning and conducting gas pipeline system/component testing will be inspected for quantification and quality performance in accordance with the requirements of the Contracting Authority and the approved investment project.

If necessary, the OE will organize subsequent sampling and testing in order to confirm the compliance of the executed works with the regulatory requirements and the requirements of the contract.

- *Ensure that the systems are fully purged/cleaned by pistons or cleaned from deposits and that temporary equipment, troughs, etc. have been removed prior to the commencement of operation of the gas pipeline system:*

The head of the OE team together with other experts will carry out targeted inspections to ensure to the Contracting Authority that the systems have been completely purged/cleaned by plungers or cleaned from deposits and that temporary facilities, troughs, etc. have been removed before the start of the operation of the gas pipeline system to ensure the safety of the facility.

- *Assist the testing procedures with the EPC Contractor, present the tests and field acceptance tests, collect the test data, analyze and evaluate the test reports to determine the actual performance of the Equipment and other equipment against the requirements of the Construction Contract and the Contractor of the EPC contained therein by designating inspectors (in conjunction with the independent inspector's staff in Greek territory in accordance with the terms of reference of the independent inspector):*

Testing of equipment and other equipment is essential to enable them to function and to use in a satisfactory manner when put into service.

The EPC Contractor will prepare a detailed Schedule for the final assembly, acceptance and commissioning of the Project that will include all equipment, subsystems, components and materials to ensure compliance with the specifications. The schedule will be reviewed by the OE.

Throughout the project implementation period, the OE will review, complete and archive the submitted documentation. If missing documents are found, they will require the Contractor to provide them with EPC and will inform the Contracting Authority if necessary. For this purpose, the OE will develop and implement a Document Management System that will allow it to continually control the input information.

The OE will coordinate the testing procedures with the EPC Contractor and will attend the tests and field acceptance tests. Will collect the test data, analyze and evaluate the test reports to determine the actual performance of the Equipment and other facilities against the requirements of the Construction Contract and Guarantees of the EPC Contractor contained in it, through the independent inspectors on the Greek and on the Bulgarian territory, in accordance with the terms of reference of the independent inspector.

- *Observes the tests for proving the operating parameters and the warranty tests and recommends activities in the event that the performance characteristics are not achieved:*

The OE will monitor the demonstration of operational parameters and warranty tests. After the successful completion of the samples after the completion of the site, the OE will prepare and submit to the Contracting Authority a Test Report, which will precede any procedures and acts for endorsement of the Final Report as well as the issuance of a Performance Certificate and a Final Payment Certificate under the construction. Upon detection of an irregularity or suspicion of irregularity or fraud, the OE will immediately prepare and submit a non-compliance report that will contain a description of the detected irregularity or grounds for suspicion of irregularity or fraud and a recommendation to perform certain activities in order to achieved performance. The report will be accompanied by all documents supporting the information contained therein.

➤ **Supervision of commissioning activities**

- *It certifies the preliminary and final acceptance of the Project and issues acceptance certificates on behalf of the Contracting Authority after prior written approval by the Contracting Authority and in accordance with the terms of the Construction Contract and the applicable regulatory regime:*

Upon completion of the works, the Contractor of the EPC under the Construction Agreement filed an application, thus notifying the OE when, in his view, the works were completed. The OE has a certain period during which to inspect and issue a certificate of acceptance or to reject the application, arguing. The OE will provide a list of the reasons and an accurate description of the work to be performed by the EPC Contractor to enable the issuance of an Acceptance Certificate.

In accordance with the requirements of the Contract Documents, the OE will issue a Certificate of Acceptance to the Contractor of the EPC after the prior written approval of the Contracting Authority, communicating the date on which the Works are completed in accordance with the Contract, except for the minor unfinished work or deficiencies to change the use of the Works for the specified use.

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- *Undertakes the completion of the Project and makes a final balance of the materials:*

The OE will monitor the site during the trial operation from the issuance of a permit for use of the Bulgarian section, respectively a permit for operation - for the Greek section until the expiration of the Defects Report within the meaning of the contract conditions for the site. The OE will manage the defect removal processes and will assist the Contracting Authority in the documentary and financial closure of the Construction Agreement. OE will undertake the completion of the Greece-Bulgaria Natural Gas Interconnector Project and will finalize the materials.

- *Verify completion of site cleaning by the EPC Contractor:*

During the implementation of the "Greece-Bulgaria Natural Gas Interconnector" project, the OE will make visits to the construction technology building so as to ensure that the EPC Contractor will limit its activities within the site and within all additional areas that may be provided by the Contracting Authority and negotiated with the OE as work areas. The OE will require the EPC Contractor to take all necessary precautions to keep the Mechanism and its personnel within the site and these additional areas and not to allow them in land.

During the execution of the works, the OE will monitor whether the EPC Contractor maintains the site free from all unnecessary obstacles and stores or removes any part of its mechanization or any excess material. The OE will track whether the EPC Contractor clears and removes from the site all the remains of destroyed facilities, waste and temporary construction that are no longer needed.

Upon completion of the work on an area, the OE will monitor and control the timely removal of the temporary construction sites and the withdrawal of the Mechanization of the Contractor's EPC, provided they will not be used during the Delayed Reporting Period. In addition, the OE will ensure that all areas occupied by the EPC Contractor are restored to their original condition. For this purpose, the OE will use the image material from the original state of the site. If the EPC Contractor does not restore the original state of the construction site, the OE will propose to the Contracting Authority measures to eliminate the reasons. In one case, the Contractor will hire another contractor to clear the construction site and the costs will be withheld by the EPC Contractor.

- *Determine, in consultation with the Contracting authority, when the Take Over Certificate is to be issued, and provide the Contracting Authority with a written recommendation regarding the payment to the Contractor of the EPC of amounts due to the EPC Contractor when issuing such Certificates. The OE issues Taking Over Certificate in accordance with the Construction Agreement, respectively, confirming the acceptance of the Contractor's activities of the EPC after prior written approval by the Contracting Authority. For the Bulgarian section, the OE advises and/or signs Act No.15 under Ordinance No. 3 for drafting acts and protocols during construction on behalf of the Contracting Authority if authorized for this activity. All these activities are carried out taking into account the provisions of the two countries - Greece and Bulgaria:*

Pursuant to the Bulgarian legislation, upon completion of the construction, the Construction Supervision will draw up an act of concluding with the signing, certifying that the construction is executed according to the approved investment projects, the certified executive documentation, the requirements for the constructions under Art. 169, par. 1 and 3 of the SDA and the terms of the construction contract. The protocols of the successful single unit tests will also be attached to the document. This act shall be handed over by the Contractor to the Contracting Authority.

Preparations will be done for the issuance of a permit for use for the Bulgarian section and for the issuance of a permit for operation according to the Greek technical regulation "Natural gas transfer systems with maximum working pressure above 16 bar" for the Greek section, in compliance with the relevant legislation.

The OE will supervise the preparation of the construction file by performing the following activities:

- review and assist in the completion of the as-built documentation;
- will consult and/or sign a Test Act 15 according to Ordinance No 3 for the preparation of acts and protocols during construction on behalf of the Contracting Authority if authorized to do so;
- will control the assembly of all construction documentation related to the execution of the building and its compliance with the normative requirements;
- will assist the implementation of the State Acceptance Commission and the issuance of a permit for use of the construction for the Bulgarian section, as well as
- will assist in the issuance of an operating permit under the Greek Technical Regulation "Natural gas transfer systems with a maximum working pressure above 16 bar" for the Greek section.

In accordance with the requirements of the Contractual Documents, the OE will issue a Taking over Certificate to the Contractor of the EPC after consulting the Contracting Authority, communicating the date on which the Works are completed in accordance with the Contract, except for the minor unfinished work or deficiencies that will not substantially change the use of You work for the specified use.

- *Prior to the release of a final payment under any Contract and/or Performance Guarantee, it certifies that the EPC Contractor has settled all outstanding payments, obligations and claims against its subcontractors, suppliers of goods and services and any other third party, including satisfactory removal of any defects in third party ownership:*

The OE will issue interim payment certificates or pay-per-state certificates or a final payment certificate and will present the same without undue delay to the Contracting Authority within the specified deadlines under the contractual terms for approval by the OE and for endorsements by the Contracting Authority.

Upon the expiration of the defect reporting period and in the absence of any disputes and claims by the Contractor of the EPC and/or the Contracting authority, the certificate of performance shall be issued by the OE on behalf of the Contracting Authority. The performance certificate specifies the date on which the EPC Contractor has fulfilled his obligations. The Contracting authority returns the Performance Enhancement to the Contractor. The contractor of the EPC shall provide a draft final payment report, as specified in the contract, upon receipt of a performance certificate. If the draft final report is not approved, an interim payment certificate is issued for the approved amounts. If approved, it becomes a final report and is the basis for the final payment certificate. The contractor of the EPC shall transmit, together with the final report and a written settlement confirming that the payment is complete and final. The OE issues a Certificate of Final Payment and the Contracting authority pays within a specified period in the contract after receiving the certificate.

Prior to the release of the final payment, any contract and/or performance warranty, the OE will certify that the EPC Contractor has settled all outstanding payments, claims and claims against its subcontractors, suppliers of goods and services and any other third including satisfactory removal of any defects in third party ownership.

➤ **Surveillance of training activities**

In accordance with the Construction Contract, the Contractor of the EPC conducts training of the Contracting Authority's personnel for the operation and maintenance of the equipment of the Project and the gas pipeline system. The OE will review the training plan of the EPC Contractor and, if necessary, provide recommendations and amendments. The OE will make its comments and will require more specification and additional documentation to familiarize staff, if applicable.

Prior to putting into operation the "Greece-Bulgaria Natural Gas Interconnector", the OE will review and investigate the training plan of the EPC Contractor, will require and will make sure that the



personnel are familiar with the operating instructions and other documents for the normal maintenance of the gas connection.

The OE will interact with the EPC Contractor in monitoring the training, acceptance of the pipeline system, preparation for the project work and maintenance of the pipeline system and equipment during the commissioning and testing of the Project. The OE will inform the Contracting Authority of any problems and will assist and advise on how to solve them.

The OE will verify that all the user manuals for the equipment and installations developed by the EPC Contractor are available and are prepared in a language that is understandable to the operating personnel.

➤ **Other activities at the discretion of the Owner's Engineer**

- ***Preparation, including through consultation with supervisors and supervisors, the conduct of Samples after completion (complex start-ups), presence during their conduct and validation of the results:***

Post-graduation samples should be planned with a sufficient lead time, and the EPC Contractor should submit proposals for a post-graduation program, several months prior to sampling, to ensure consistency with control and supervisory authorities as appropriate. Our experience shows that specific site meetings will have to take place before the completion of the samples, in addition to the regular follow-up meetings that will also be attended by subcontractors who will take part in the tests. The OE will participate with the relevant experts in carrying out the samples to monitor whether they are conducted under the contract and the regulatory framework. OE experts will analyze the results of the samples and give their opinion on the success of the samples. In case of unsuccessful samples, the OE will require the EPC Contractor to look up the issues and re-perform the samples.

- ***Assistance in obtaining concordances and opinions from external institutions; coordinating and conducting tests and commissions on the acceptance of these systems and the final acceptance of the site and the works:***

The OE will assist the Contracting Authority and the Contractor of the EPC to carry out the procedures for issuing the necessary written submissions from the specialized control bodies, the final contracts with the exploitation companies for joining the networks of the technical infrastructure and others. Prior to commissioning, the OE will ensure that all affected facilities are recovered and tested, and all requirements of the operating companies are met.

*2.4.1. Activity approach - tasks, steps, their sequence and coordination*

During the implementation of our assigned tasks related to the supervision of the activities prior to commissioning, commissioning, training performed by the Contractor of the EPC and others referred to in item 2.4. we will maintain a flexible approach that will ensure the ability to reflect the changes that may be required as a result of our observations and analyzes during the course of the project.

The scope of these activities is clearly stated in the Terms of Reference and all procurement documentation.

As noted above in this Technical Proposal, we accept that funding will be provided and the contract for the implementation of this procurement will enter into force within one month of its signature. Of course, even if this is delayed, a detailed assessment of the situation will be carried out and the necessary revisions of the program will be made to reflect the actual course of the Treaty.

According to the ToR, the time limit for the execution of this order is until the last of the following:

- the issuance of a permit for use under Art. 177 of the SDA for the Bulgarian section;

- issuance of Operating Permit under the Greek Technical Regulation "Natural gas transfer systems with a maximum working pressure above 16 bar" for the Greek section;
- Issuance of a Pipeline Operational Certificate;
- completion of the services by the OE according to the ToR, but not longer than the term provided in Art. 113, para. 1 of the PPA, namely - 5 /five/ years.

During the implementation of the supervision of the activities prior to commissioning, commissioning, training provided by the Contractor of the EPC, etc., the OE provides to base the necessary experts from its team on the construction site. Other OE resources will be available.

With respect to these activities, our team will provide quality performance management and quality control in order to execute the project on time and within the planned budget, covering the **key aspects** and referring to **Good Engineering Practices**, namely:

❖ **Project manager**

As already noted, the Project Manager will be responsible for the overall management of project implementation and quality control.

❖ **Communication**

The main approach in the implementation of the activities of the OE is the realization of active interaction with all the participants in the Project and their teams. The aim is to establish a working relationship, cooperation and a permanent link between the participants, leading to timely, qualitative and timely implementation of the obligations laid down in the Treaties.

❖ **Internal control and ensuring high quality execution of the procedure**

The OE ensures that the project will follow strict quality management rules in line with ISO standards, and Quality Assurance (QA) and Quality Control (QC) procedures. OE has implemented an ISO 9001 - quality management system for all activities in order to ensure a reliable and permanently stated quality level.

The existing quality procedures in the structure of the OE are oriented towards the execution of such services and cover activities in the pre-construction and construction phase of the project as well as in the phase of reporting defects.

The consultant will plan the necessary resources and personnel to ensure the full implementation of the quality system requirements.

❖ **Procedures**

In order to provide services of the highest quality in the implementation of the services prior to commissioning, commissioning and training by the Contractor of the EPC, our team will provide all the necessary conditions for the successful implementation of the project.

The proposed organization of the project is tailored to the specific needs of the Contracting Authority and will create the necessary prerequisites for optimal results.

The wide experience in projects with a similar scope and content, enriched by the applied practices and the effectiveness of the described organization and methodology for the implementation of this public procurement, makes us a reliable partner in the implementation of such projects.

❖ **Clear allocation of responsibilities**

It is very important to clearly define and allocate responsibilities between all participants in the Project as well as to exercise constant control of their actions in order to ensure the quality and timely fulfillment of the obligations.

❖ **A team of experts from the Owner's Engineer**

OE offers a team of highly qualified experts and experience to achieve the goals. The positions that are included in the OE team are as follows:

- Project manager;
- Head of QMS;
- Head of the HSSE;
- Project management services manager;
- Engineering Design Manager;
- Head of Construction supervision;
- Head of QA/QC and inspection of materials;
- KE Independent Inspector 1;
- KE Independent Inspector 2;
- Non-key experts.

❖ **Non-key experts**

In implementing the activities subject to point 2.4 of this Technical Proposal, the OE will rely on good engineering practice to implement the project's objectives and the specificities of specific activities, namely - to provide additional experts to support proposals order execution team. These experts will be selected according to needs, depending on the need to perform certain activities. All experts will have higher education and relevant professional experience.

As already noted above, all experts are in legally regulated effective legal relationships with the OE. These legal relationships are a result of the Company's statutes or labor and civil contracts between the company and the proposed experts. In this way the availability of all the experts proposed by the OE has been ensured.

Activities of the OE related to oversight of activities prior to commissioning, commissioning, training performed by the Contractor of the EPC and others referred to in point 2.4. of the Technical Proposal fall into Phase 2 of the Project, conditionally divided into two phases in the Assignment.

For the purpose of a more timely presentation of time performance, we've grouped the individual activities according to the key dates of the Indicative Program of the Project below. Specifies the sequence and coordination that guarantee performance at the level of individual tasks within the duration of the construction.

**Table: Sequence of implementation of activities during commissioning and completion and training activities**

<b>Sequence of activities and tasks to be performed by the Owner's Engineer (OE) for the period of commissioning and completion and training activities</b>	<b>Indicative dates/duration of each activity</b>
Building permission for the territory of Bulgaria	issued in the 3rd quarter of 2017.
Signing a Construction Contract	2nd quarter of 2018
Signing of the Contract for the Supply of Linear Pipes	2nd quarter of 2018
Permission to build on the territory of Greece	2nd quarter of 2018
Start of construction	the end of the second quarter of 2018.
Start-up meeting to begin construction	the end of the second quarter of 2018.

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<p><b>Stage of execution of all construction and assembly works on the site within the scope of the order</b></p>	<p>from the beginning of the construction until the date of the last of the two issue of a permit for use for the Bulgarian section or the issuance of a permit for exploitation for the Greek section (based on the EPC Contractor's offer)</p>
<p><b>Control of commissioning and completion activities. Training</b></p>	
<p><b>Supervision of activities before commissioning</b></p>	<p><b>after completion of the construction activities and before commissioning</b></p>
<p>An overview of the start-up and commissioning procedures prepared by the EPC Contractor and the development of an exhaustive end-of-installation checklist identifying the Contractor's work on final assembly, start-up work, and putting into operation, as applicable</p>	
<p>Prepares, together with the Contractor for the EPC, a list of defects for removal, stating the unfinished Activities on the construction site, during the final stages of completion, as specified in the relevant Contract</p>	
<p>Review of the final assembly, acceptance, and commissioning schedule for the project to ensure that this allows effective start-up of the pipeline system</p>	
<p>Physically checks for compliance with approved drawings and specifications by the inspection staff - buildings, pipelines, mechanical and electrical systems, control, measurement and automation systems, telecommunication systems and control systems as well as cathodic protection and associated facilities</p>	
<p>During the start-up works, all equipment and systems tests are present; examines for integrity and compliance with the requirements of the Test Documentation Project prepared by the Contractor of the EPC, certifies the specifications for successful completion (jointly with the staff of the independent inspector on Greek territory in accordance with the terms of reference of the independent inspector)</p>	
<p>Ensures the startup of the Equipment in accordance with the operating instructions and setting and calibration at work, and so on. in accordance with the check list of the commissioning activities, by engaging inspection staff (in conjunction with the independent inspector's staff in Greek territory in accordance with the independent inspector's assignment)</p>	
<p>Inspect all elements of the pipeline system at the time of submission by the Contractor of the EPC for acceptance, review and agree list of exceptions and issue transfer certificates</p>	
<p>Verifies whether the EPC Contractor closes the work in progress, if any, according to the agreed schedule, without hindering the</p>	

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commissioning and initial operation of the gas pipeline system	
In the event of any defects or problems encountered during commissioning, notify the Contractor of the EPC and receive acceptable suggestions for removal activities	
Monitor the check and calibration of the measuring instrumentation and systems used in the commissioning and testing of the pipeline system/components by designating inspectors (jointly with the independent inspector on Greek territory in accordance with the independent inspector's assignment)	
Ensures that the systems are completely purged/cleaned by plungers or cleaned from deposits and that temporary facilities, troughs, etc., are removed before the start of operation of the gas pipeline system	
Coordinates testing procedures with the EPC Contractor, attends tests and field acceptance tests, collects test data, analyzes and evaluates test reports to determine the actual performance of the Equipment and other equipment in accordance with the requirements of the Construction contract and EPC Contractor's Guarantees, contained therein by designating inspectors (together with the independent inspector's staff in Greek territory in accordance with the independent inspector's assignment)	
Observes the tests for proving the operating parameters and the warranty tests and recommends activities in the event that the performance	
<b>Supervision of commissioning activities</b>	<b>after completion of the construction activities and before commissioning</b>
Verifies the preliminary and final acceptance of the Project and issues acceptance certificates on behalf of the Contracting Authority upon prior written approval by the Contracting Authority and in accordance with the terms of the Construction Contract and the applicable regulatory regime	
Undertakes the completion of the Project and finalizes the material	
Verifies completion of site cleanup by the EPC Contractor	
Determines, in consultation with the Contracting Authority, when to issue the Take-Over Certificate and submits to the Contracting Authority a written recommendation as to the payment to the Contractor of the EPC of the amounts due to the Contractor for the EPC when issuing such certificates. The OE issues a Certificate of Acceptance in accordance with the Construction Agreement, respectively, confirming the acceptance of the Contractor's activities of the EPC after prior written approval by the Contracting Authority. For the Bulgarian section, the OE advises and/or signs Act No. 15 under Ordinance No. 3 for drafting acts and protocols during construction on behalf of the Contracting Authority if authorized for this activity. All these activities are carried out taking into account the provisions of the two countries - Greece and Bulgaria	

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Prior to the release of a final payment under any Contract and/or performance guarantee, it certifies that the EPC Contractor has settled all outstanding payments, obligations and claims against its subcontractors, suppliers of goods and services and any other third party including satisfactory removal of any defects in third party ownership	
<b>Supervision of training activities performed by the EPC Contractor</b>	<b>after completion of the construction activities and before commissioning</b>
Review the EPC Contractor Training Plan	
Monitoring of training, acceptance of the pipeline system, preparation of the project and maintenance of the gas pipeline system and equipment during the commissioning and testing of the Project	
<b>Other activities at the discretion of the Owner's Engineer</b>	<b>after completion of the construction activities and before commissioning</b>
Preparation, including through consultation with supervisors and supervisors, the conduct of Samples after completion (complex start-ups), presence during their conduct and validation of the results	
Assistance in obtaining concordance and opinions from outside institutions; coordinating and conducting tests and commissions on the acceptance of these systems and the final acceptance of the site and the works	
<b>View and review End-to-End / Delivery reports by the Contractor on the EPC</b>	<b>First half of 2020</b>
<b>Obtaining permission for use for the Bulgarian section</b>	<b>First half of 2020</b>
<b>Obtaining a Operating License for the Greek section</b>	<b>First half of 2020</b>
<b>issuance of a Pipeline Operational Certificate</b>	<b>First half of 2020</b>
<b>Date of commercial exploitation</b>	<b>First half of 2020</b>

#### 2.4.2. Risks and measures to reduce them

The Contracting authority has identified risks in a simplified risk matrix attached to the participation dossier. Each of these risks is dealt with in detail in the relevant part of this Technical Proposal that is consistent with the activities on which this risk is most affected.

The risks of a simplified matrix risk threatening the successful implementation of the commissioning and closure activities are as follows:

- Licenses and permissions of the operator, including the release (delay in issuing, other conditions/restrictions);
- Inability to provide gas due to inadequate or unavailable gas extraction and transfer infrastructure (including force majeure).

#### ❖ A way to overcome the risks

The risk management engineer's strategy, as mentioned in the previous section 2.1. Project Management Services, p.2.2. Engineering assistance and p.2.3. Construction Supervision Activity

from the Technical Proposal consists of organizing and moderating risk management seminars, constantly updating the risk register, and supervising and monitoring the implementation of mitigation measures.

Accordingly, for the release and closure supervision period, the first step in the process of addressing risks is to identify those that would prevent the performance of the relevant works from the scope of the contract. Once we have the risk register, we perform a quantitative risk analysis to determine the probability of occurrence, then perform a qualitative risk analysis by focusing on the significance of the risks. As a result of these analyzes, we identify the most hazardous risks for the project and compile a plan to overcome them, consisting of their timely updating, determining the likelihood of these risks occurring, and the impact of their impact on the value and duration of the project. The party which is best placed to take the appropriate risk by allocating the responsibilities and timelines for performance of the obligations in the contracts.

Similarly, the risks will be classified and positioned in the point 1.2. matrix.

❖ **Risk management measures**

**Risk: Licenses and permissions of the operator, including the release (delay in issuing, other conditions/restrictions)**

**a) Description of the causes**

The prerequisites for delay in the issuing of licenses and permits to the operator, including the release or the occurrence of other conditions/restrictions, may be of a different nature, namely:

- inadequate technical security and security;
- the burden on the employees of the party responsible for issuing such licenses and permits to prevent their receipt;
- individual members of the teams of one of the parties are not available to carry out the tasks and activities related to the licenses and permits of the operator;
- assigning unexpected and unplanned urgent tasks to the employees, resulting from external requirements (EU, Greek and / or Bulgarian authorities);
- loss of qualified resource;
- Insufficient personal training of the employees responsible for the licenses and permits of the operator.

The risk is directly proportional to the number of experts and inversely proportional to the experience of the experts.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

*The impact* is first and foremost on time, and when problems of lack of performance (delay in issuing, other conditions / restrictions) are exacerbated, the impact can also affect quality.

**Probability:** rare.

**Impact:** Significantly.

**Classification:** medium risk.

**c) When the risk is likely to occur**

At each stage of implementation of the commissioning and completion activities.

**(d) Description of possible measures (avoidance, retention, reduction, transfer)**

The risk can be avoided by properly selecting key experts, organizing and motivating the teams of the parties responsible for issuing the licenses and permits of the operator.

Risk is inappropriate for adoption - it requires large reserve resources, mostly from time and finances.

The risk should be controlled - by the OE for each of the activities and tasks of this procurement and at each workshop.

**(e) Party bearing the consequences of the risk**

Contracting Authority.

**(f) Party responsible for risk management**

Mainly Owner's Engineer, with the assistance of the Contracting authority.

**Risk: Inability to provide gas due to inadequate or unavailable gas extraction and transport infrastructure (including force majeure)**

**a) Description of the causes**

As a reason for this risk of not being able to provide gas due to inadequate or unavailable gas extraction and transport infrastructure (including in case of force majeure), the OE considers that there will be "unforeseen circumstances that are unreasonable , have arisen in the process of building performance and can not be predicted, which means that they can not be prevented by a party, responsible for the fulfillment of the condition. As we have already mentioned, examples of force majeure can be found in the following areas: natural disasters; strong economic, political and social life shocks, etc. These circumstances may delay the construction or make it impossible in whole or at a certain stage of its realization.

From our practice, we can conclude that "unforeseen circumstances" are those that an experienced contractor was unable to predict during the preparation of his bid.

**b) Description of the impact on time, value, quality; quantitative and qualitative analysis**

The impact is first and foremost on time, and when problems are exacerbated, impact can also affect quality.

**Probability:** rare.

**Impact:** Significantly.

**Classification:** medium risk.

**c) When the risk is likely to occur**

At each stage of implementation of the commissioning and completion activities.

**(d) Description of possible measures (avoidance, retention, reduction, transfer)**

After reviewing the reasons for the failure to provide gas due to inadequate or unavailable gas extraction and transfer infrastructure (including in case of force majeure) and the effect they have on the term of performance of the contract, the OE will express an opinion on how far this affects on the final date for implementation, and is there any reason to increase the completion time. The implementation schedule planned by the EPC Contractor is used, and this schedule deals with the impact of the event associated with the occurrence of the circumstances. Analyze the modified schedule and determine the actual change in the completion date of the works.

It is possible, however, that circumstances arise to affect activities that are not on the critical path, ie. will not lead to an increase in completion time. In this case, the OE will advise the Contracting authority and, upon receiving his consent, will notify the Contractor of the EPC that the date of completion will remain unchanged.

However, whenever unforeseen circumstances arise, the OE will require the EPC Contractor to take steps to limit their effect on the project timetable.

**(e) Party bearing the consequences of the risk**



Contracting Authority.

**(f) Party responsible for risk management**

Mainly the Owner's Engineer, with the assistance of the Contracting Authority and the design team of the Contractor of the EPC.

*2.4.3. Logistics*

As already noted above in this Technical Proposal, the OE will have offices in Bulgaria and Greece with excellent working conditions, sufficient working space for all experts and equipped with modern and professional equipment. The detailed description of the logistics for the implementation of the whole project is given in 2.1.3. of Project Management Services.

At this point, we will comment on the logistics required for the implementation of the commissioning supervision activities, completion and training activities. In general, the logistics required for the particular task are the same as the one for the implementation of the whole project. Accordingly, the OE will provide all necessary resources - resources, materials, equipment and teams that are needed to fulfill the specific tasks at this stage of the Project. The main resource for implementation is again the experts the OE will provide for the implementation of the contract. In general, during the second phase, most of the activities will be carried out on site at the construction site and offices located on the site. According to the documentation, the EPC Contractor will provide means of transport that will ensure the normal movement of the team members as well as site offices for the normal work of the experts.

The Team Leader will ensure the proper allocation of material resources so as to ensure the implementation of the commissioning, completion and training activities.

The potential of resources available to the team will be based on:

- the capacity of the participants in the Association to successfully complete such contracts and with proven long-standing experience in successfully implementing FIDIC contracts and knowledge of the specific conditions under which the contract is being executed;
- immediate access to technical assistance by a wide range of experts, fire prevention, health and safety at work, commissioning, contractual issues, the economy and finance, and environmental protection;
- In-depth access to the team to a database, standards, reference documents, computer software, and other maintenance resources provided by the Owner's Engineer.

The OE team members will be mobilised as per the project requirement and progress of work respecting the EPC Contractor schedule. As the schedule of the EPC Contractor is not known, the Mobilization Plan has been built based upon our scope of work understanding and experience of similar project.

Below, the proposed mobilization plan for the Pre-commissioning, Commissioning & Gas-in activities.

<b>Position</b>	<b>Mobilization Month (T + XX Months)</b>
<b>Review EPC Contractor's plans and procedure, documents</b>	
Construction Manager	
Head Engineering Design	
Third-Party Inspection	
QA/QC Manager	
<b>Obtention Mechanical Completion</b>	<b>T0</b>
<b>Site Precom/com &amp; Gas-in activities</b>	<b>T0 + 3M</b>
Construction Manager	T0 + 3M
Commissioning Manager	T0 + 3M
Third-Party Inspection Supervisor	T0 + 3M
Mechanical/Piping Inspector	T0 + 3M
Elec & Instrum and Scada Inspector	T0 + 3M
QA/QC Manager	T0 + 3M

T0 = Expected date of the Commissioning Commencement.

The OE is convinced that the available and available resources are in an excessive amount to respond to this project.

#### 2.4.4. Organization of staff - allocation of functions and assignment of tasks

Here again, the main resources for the implementation of the activities for supervision of the commissioning, the completion activities and the training are the specialists that the OE will provide for the implementation of the contract. The OE has proposed for the individual positions experts and specialists who fully meet the requirements of the Contracting Authority in the documentation for participation in the open procedure for the award of the public procurement contract. The OE team will include the following items:

1. Project Manager;
2. Head of the QMS;
3. Head of the HSSE;
4. Project management services manager;
5. Head of Engineering Design;
6. Head of Construction supervision;
7. Head of QA/QC and inspection of materials;
8. KE Independent Inspector 1;
9. KE Independent Inspector 2;
10. Non-key experts.

For implementation of the supervision, commissioning, completion and training supervision, the Owner's Engineer will also provide non-key experts who will assist the OE 's team of the site if necessary to efficiently carry out the project work. The non-key expert team will be available to the Team Leader according to the specifics and the Project Implementation Plan.

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The overall responsibility for the day-to-day implementation of the project is the Project Manager who will be available for the entire implementation period of the Owner's Engineer contract.

We consider the clear division of responsibilities and tasks among each of the experts we offer. The tasks to be performed are allocated according to the competencies of the experts in similar large-scale projects. The OE envisages the introduction of an organizational structure of the team in which the lines of communication and interaction are clearly and precisely defined. The organizational structure of the OE team is addressed in detail in point 3 of this Technical Proposal, which describes the distribution of functions and the allocation of tasks.

### **Allocation of tasks and responsibilities**

On the basis of the distribution of functions and responsibilities among the members of the Assigning team designated to carry out project activities, a system of control over the current performance of the activities of the individual members will be established, guaranteeing to the highest degree the successful accomplishment of the assigned tasks and functions. The control will be combined with immediate communication between the Contracting Authority's team and the OE team, aiming at maximizing the results of the accomplished tasks and their timely completion.

<b>Activities and tasks of the Owner's Engineer (OE) for the period of commissioning and the completion and training activities</b>	<b>Responsible expert from the OE team</b>
<b>Supervision of activities before commissioning</b>	
An overview of the start-up and commissioning procedures prepared by the EPC Contractor and the development of an exhaustive end-of-installation checklist identifying the Contractor's work on final assembly, start-up work, and putting into operation, as applicable	Project manager; Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; Non-key experts
Prepares, together with the Contractor for the EPC, a list of defects for removal, stating the unfinished Activities on the construction site, during the final stages of completion, as specified in the relevant Contract	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2
Review of the final assembly, acceptance, and commissioning schedule for the project to ensure that this allows effective start-up of the pipeline system	Project manager; Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials;
Physically checks for compliance with approved drawings and specifications by the inspection staff - buildings, pipelines, mechanical and electrical systems, control, measurement and automation systems, telecommunication systems and control systems as well as cathodic protection and associated facilities	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2; Non-key experts
During the start-up works, attends at all equipment and systems tests; examines for integrity and compliance with the requirements of the Project Test Documentation prepared by the Contractor of the EPC, certifies the specifications for successful completion (jointly with the staff of the independent inspector on Greek territory in accordance with the terms of reference of the independent inspector)	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2; Non-key experts

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Ensures the startup of the Equipment in accordance with the operating instructions and setting and calibration at work, and so on. in accordance with the check list of the commissioning activities, by engaging inspection staff (in conjunction with the independent inspector's staff in Greek territory in accordance with the independent inspector's assignment)	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2; Non-key experts
Inspect all elements of the gas pipeline system at the time of their submission by the Contractor of the EPC for acceptance, review and agree list of exceptions and issue transfer certificates	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2; Non-key experts
Verifies whether the EPC Contractor closes the work in progress, if any, according to the agreed schedule, without hindering the commissioning and initial operation of the gas pipeline system	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; Non-key experts
In the event of any defects or problems encountered during commissioning, notify the Contractor of the EPC and receive acceptable suggestions for removal activities	Project manager; Project Management Services Manager; Head of QMS Head of Construction supervision; Head of QA/QC and inspection of materials;
Monitor the calibration and calibration of the instrumentation and systems used in the commissioning and testing of the pipeline system/components by designating inspectors (jointly with the independent inspector on Greek territory in accordance with the independent inspector's assignment)	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2; Non-key experts
Ensures that the systems are completely purged/cleaned by plungers or cleaned from deposits and that temporary facilities, troughs, etc., are removed before the start of operation of the gas pipeline system	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2;
Coordinates testing procedures with the EPC Contractor, attends tests and field acceptance tests, collects test data, analyzes and evaluates test reports to determine the actual performance of the Equipment and the other facilities in accordance with the requirements in Construction Contract and EPC Contractor's Guarantees contained therein by designating inspectors (together with the independent inspector's staff in Greek territory in accordance with the independent inspector's assignment)	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2;
Observes the tests for proving the operating parameters and the warranty tests and recommends activities in the event that the performance	Head of QMS; Head of Construction supervision; Head of QA/QC and inspection of materials; KE

	Independent Inspector 1; KE Independent Inspector 2; Non-key experts
<b>Supervision of commissioning activities</b>	
Verifies the preliminary and final acceptance of the Project and issues acceptance certificates on behalf of the Contracting Authority upon prior written approval by the Contracting Authority and in accordance with the terms of the Construction Contract and the applicable regulatory regime	Project manager; Project Management Services Manager
Undertakes the completion of the Project and finalizes the material	Project manager; Head of QA/QC and inspection of materials;
Verifies completion of site cleanup by the EPC Contractor	Project manager; Head of Construction supervision; Non-key experts
Determines, in consultation with the Contracting Authority, when to issue the Take-Over Certificate and submits to the Contracting Authority a written recommendation as to the payment to the Contractor of the EPC of the amounts due to the Contractor for the EPC when issuing such certificates. The OE issues Taking over Certificate in accordance with the Construction Agreement, respectively, confirming the acceptance of the EPC Contractor's activities after prior written approval by the Contracting Authority. For the Bulgarian section, the OE advises and/or signs Act No. 15 under Ordinance No. 3 for drafting acts and protocols during construction on behalf of the Contracting Authority if authorized for this activity. All these activities are carried out taking into account the provisions of the two countries - Greece and Bulgaria	Project manager; Project Management Services Manager
Prior to the release of a final payment under any Contract and / or performance guarantee, it certifies that the EPC Contractor has settled all outstanding payments, obligations and claims against its subcontractors, suppliers of goods and services and any other third party including satisfactory removal of any defects in third party ownership	Project manager; Project Management Services Manager
<b>Supervision of training activities performed by the EPC Contractor</b>	
Review the EPC Contractor Training Plan	Project manager; Head of Construction supervision; Head of QMS; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2;
Monitoring of training, acceptance of the pipeline system, preparation for the project work and maintenance of the gas pipeline system and equipment during the commissioning and testing of the Project	Project manager; Head of QMS; Head of QA/QC and inspection of materials;
<b>Other activities at the discretion of the Owner's Engineer</b>	
Preparation, including through consultation with control authorities and supervisors, the conduct of Tests after	Project manager; Head of Construction supervision;

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completion (complex start-ups), presence during their conduct and validation of the results	Head of QMS; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2;
Assistance in obtaining coordinations and statements from external institutions; coordinating and conducting tests and commissions on the acceptance of these systems and the final acceptance of the site and the works	Project manager; Head of Construction supervision; Head of QMS; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2;

### **Plans and systems**

Throughout the entire implementation period, the OE is committed to developing various **plans and systems** to facilitate the process of controlling the various activities carried out by Project participants. During the commissioning and completion and training activities, the OE will complement and/or use the following plans and programs:

***Table: Plans and systems to be complemented and/or used by the Owner's Engineer in the implementation of the commissioning supervision activities and the completion and training activities***

<b>No</b>	<b>Type of plan / system</b>	<b>Content</b>	<b>Responsible expert from the Owner's Engineer team</b>
1	Control plan	Prepared to match the EPC Contractor's activities. Document all control activities and findings by using control sheets for specific activities and locations.	Head of QMS; Head of QA/QC and inspection of materials; Head of Construction supervision; KE Independent Inspector 1; KE Independent Inspector 2;
2	Test and Inspection Plans	Includes all related activities with respect to the relevant contracts and applicable specifications. The test and inspection plan shall include all necessary activities to ensure the consistency of all activities and delivered goods with the Project specifications - Contracts with Suppliers, specifications, etc. and the requirements of the legislation and the permits.	Head of Construction supervision; KE Independent Inspector 1; KE Independent Inspector 2;
3	Quality plan	Determines quality control. The OE is reviewing this plan.	Head of QMS; Head of QA/QC and inspection of materials; KE Independent Inspector 1; KE Independent Inspector 2;
4	Plan for the implementation of activities and / or	Sequence of performance of the activities and/or services and supplies of Equipment under the relevant	Project manager; Project management services Manager; Head of

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	services	schedules.	Construction supervision;
5	Schedule for final assembly, acceptance and commissioning of the Project	It identifies the Contractor's activities on final assembly, start-up works and commissioning. The OE is reviewing this schedule.	Project manager; Project management services Manager; Head of Construction supervision;
6	Material identification system	Tracking the materials to their respective documentation. The OE is reviewing this system.	Head of QA/QC and inspection of materials;
7	Quality management system	Approved by the Contracting Authority. They will create and expand the quality management system and perform regular quality audits. Part of the quality management services include the management of collective and preventive activities during the Project implementation.	Head of QMS; Head of QA/QC and inspection of materials;
8	Document Management System	It serves for document exchange and control through appropriate software, ensures the appropriate channels of communication, levels of reporting and coordination, and illustrates positions as well as vertical and horizontal relationships within the work team. It will also be used during construction.	Head of QMS; Project management services Manager;
9	Training plan	In accordance with the Construction Agreement, the Contractor of the EPC conducts training of the Contracting Authority's personnel for the operation and maintenance of the equipment of the Project and the gas pipeline system. The OE will review this plan.	Project manager; Head of QMS; Head of Engineering Design;

### **Reporting**

Reporting by the OE will be done by preparing and presenting **reports on the activity carried out**. For the implementation period of the commissioning and completion activities, the OE will prepare and submit the following reports in electronic form and on paper:

***Table: Types of reports to be prepared by the Owner's Engineer in the implementation of the commissioning supervision activities and the completion and training activities***

No	Report type	Content	Responsible expert from the Owner's Engineer team
1	Monthly reports	An overview of the state of play regarding the objectives of the Project, detailed information on the project contracts, progress of work and proposals for measures to	Project management services manager; Head of Construction Supervision;

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		reduce adverse impacts (if necessary) in relation to the Contractor, the Linear Pipe Supplier and other Suppliers who have contractual relations with the ICGB for the Project, as well as the progress of the OE itself with a forecast report for the next 30 days outlining the main items for the next reporting period.	
2	Completion Reports / Provided by the EPC Contractor	They are prepared by the EPC Contractor for the acceptance of the works. The reports include a recommendation for acceptance under the Construction Contract by the Contracting Authority and indicate the records in support of such a recommendation.	Project Manager; Project management services manager; Head of Constriction Supervision;
3	Report on the HSSE	The OE monitors and reports to the Contracting Authority, for the Contracting Authority's needs, on the adequacy and extent of compliance by the EPC Contractor with the requirements of the Contracting Authority for health, safety, security and environmental management during the performance of the Contractor's activities.	Head of the HSSE
4	Audit reports	The OE audits the work of the Contractor and the Linear Pipe Supplier against the requirements of their respective contracts.	Head of QMS; Head of QA/QC and Material Inspection
5	Inconsistency reports	Prepare immediately after the discrepancy is detected.	Head of Constriction Supervision; KE Independent Inspector 1; KE Independent Inspector 2;
6	Test reports	Contains the results of all trials and inspections.	Head of Constriction Supervision; KE Independent Inspector 1; KE Independent Inspector 2;
7	Inspection reports	Contains the results of all inspections.	Head of Constriction Supervision; KE Independent Inspector 1; KE Independent Inspector 2;
8	Monthly reports on the services performed by the independent inspector	Lists all inspection visits during the month, and for each such visit at least the following information shall be provided: - inspected items and issued certificates;	KE Independent Inspector 1; KE Independent Inspector 2;



		- type of inspection carried out (give the item number as shown on the relevant checklist for the activities) and - man hours spent.	
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### Registers

Throughout the period of execution of the order, the OE has a commitment to prepare and/or maintain various **registers** to systematise important documents prepared by the Project participants. For the period of commissioning and completion and training activities, the OE will produce and/or maintain the following registers:

**Table: Registers to be prepared and/or maintained by the Owner's Engineer in the implementation of the supervision activities during commissioning and completion and training activities**

No	Type of registry	Content	Responsible expert from the Owner's Engineer team
1	Register of technical issues	Every technical question is recorded and should have a unique identifier for tracking purposes.	Head of Engineering Design; Head of Construction Supervision;
2	Audit Register	It serves to track discrepancies and corrective actions	Head of QMS; Head of Construction Supervision; KE Independent Inspector 1; KE Independent Inspector 2
3	Register of certificates and reports	All reports and certificates are marked with unique consecutive numbers.	Head of QMS; Project management services manager; Head of Engineering Design; Head of Construction Supervision;
4	Register of approved personnel performing inspections	Contains a list of approved inspection staff.	Head of QMS; Head of Construction Supervision; KE Independent Inspector 1; KE Independent Inspector 2
5	A list of defects	It is an electronic list of defects for removal of the gas pipeline system, which reflects all defects, deficiencies, faults and inconsistencies with the requirements of the Construction Contract that are established during construction at any point in the gas pipeline system	Head of Construction Supervision; KE Independent Inspector 1; KE Independent Inspector 2;
6	List of exceptions	The OE inspects all elements of the gas pipeline system at the time of their submission by the EPC Contractor for acceptance. The	Head of QMS; Head of QA/QC and Material Inspection; KE Independent Inspector 1; KE Independent

	OE examines and coordinates this list and issues Acceptance certificates.	Inspector 2;
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## **2.5. Shop inspection for the line pipes and field inspection on site for the Greek section of IGB**

### **Shop Inspections for the Line Pipes**

The objective of these Services is to certify that the whole amount of DN 800 coated steel line pipes for the IGB Project are in accordance with the Contracting Entity's specified requirements and issue certificates according EN10204 3.2. The Third-Party Inspection (TPI) entity's personnel shall visit and be attendant at manufacturers' premises to achieve this objective.

### **Field Inspections in the Greek Territory**

The field inspections of the construction activities on the Greek territory will be performed by a Third-Party Inspector appointed by the OE. The objective of the site inspections is to provide objective third-party certification in order to make sure that:

- Materials incorporated in the construction comply with the specified requirements;
- All specified tests have been successfully performed;
- All welding complies with the specified requirements and
- Adequate documentation exists to evidence all of the above.

The achievement of the objective will be confirmed with the issue of a final inspection certificate for each construction, substantiated with the appropriate documentation.

#### *2.5.1. Approach for performance of the activities - tasks, steps, their sequence and the coordination between them*

##### 2.5.1.1. Shop Inspection for the Line Pipes

After contract award, OE includes in its scope the Procurement activities to be performed with the manufacturer during fabrication up to site delivery, such as:

- Services during the tender phase of the Pipeline (according to the Greek law) shall:
  - Review the technical documentation;
  - Review and answer questions and requests for clarification of tender documents requested by bidders;
  - Support the Contracting Entity to formulate queries for bidders and responding to answers from bidders during bid evaluation phase providing drafts or/and written opinions;
  - Prepare and submit recommendations to the Contracting Entity for the selection of the Line Pipe Supplier;
- Pre-Inspection meetings shall be organized between the OE and the TPI entity, the purpose of which is to clarify the following points:
  - Define the TPI contractor's activities in relation to the test and inspection plans of the Project;
  - Determine the co-ordination requirements;
  - Review the schedule for the work;
  - Introduce the reporting procedure;
  - Describe the non-conformance reporting procedure and

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- Describe the TPI entity's responsibilities and authorities.
- Kick-off meeting attended by the Project Manager, Pipeline expert and the Third-Party inspection expert;
- Procurement follow-up (review of vendor documents, planning, ...);
- Fabrication supervision/test attendance meetings (the procurement team shall control the progress of manufacturing, the quality, destructive and no destructive testing with the presence of Third Party Inspection, packing, conformity with standards, Greek law and set timelines);

**The (Greek) TPI entity's personnel shall:**

- Review certificates for all material received by the supplier for the supply, checking that they demonstrate the necessary compliance with the specified requirements, Greek law and confirming such compliance by stamping the certificates;
- Witness all tests (e.g; heat Analysis, tensile test, impact test, hydrostatic test, ...) that are required by the specifications, the Greek law and any additional tests that the supplier may perform, and countersign and stamp the test documentation;
- Check all required calibration certificates and endorse copies of such;
- Check all required process and personnel qualifications and endorse copies of such;
- Witness all process and personnel qualifications that are required by the specifications and Greek law any others that the Supplier may perform, and countersign and stamp the relevant documentation; Monitor all aspects of the manufacturing process towards achievement of the objective;
- Issue an inspection release note and certificate to EN 10204, type 3.2, no later than two days after completing the inspection.
- Before delivery, check that correct and complete documentation complies with the specifications (and particularly, conforming to the Greek law);
- Supervision of line pipe's delivery process: supervision of all activities of the Line Pipe Supply. The OE shall verify that expediting, inspection and material control activities follow the approved procedures. It shall also ensure that proper arrangements are in place for the line pipe's delivery, between the Line Pipe Supplier and the EPC Contractor. This will include supervision of the following activities:
- Expediting, inspection and material acceptance procedures including shop and site inspections related to the manufacturing and delivery process of the line pipes (for the Bulgarian section in accordance with art. 166, par. 1 item 3 under SDA);
- Shipping procedures including procedures for packing, handling, storage and protection during shipment;
- Attendance during line pipe loading and unloading for the verification of delivered quality and quantities and recording of any damages of supplied line pipe.

**2.5.1.2. Field Inspection in the Greek Territory**

The TPI appointed by the OE will perform the field inspections of the construction activities on the Greek territory. The objective of the site inspections is to provide objective third-party certification that:

- Materials incorporated in the construction comply with specified requirements;
- All specified tests have been successfully performed;
- All welding complies with specified requirements and
- And that adequate documentation exists to evidence all above.

The achievement of the objective will be confirmed with the issue of a final inspection certificate for each construction, substantiated with appropriate documentation.

The Third-Party Inspection services during the construction on site (in the Greek Territory) will include:

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- Reviewing the certificates for all material received on the site, checking that they demonstrate that the material is compliant to the specified requirements and confirming such by stamping the certificates. This shall also include, without limitation, welding consumables;
- Witnessing all the tests, including hydraulic testing of the pipe line or other pressurized equipment, that are required by the specifications and any additional test that the EPC Contractor may perform, and countersign and stamp the test documentation;
- Checking all calibration certificates and endorsing copies of such; Checking all required process and personnel qualifications and endorse copies of such;
- Witnessing all process and personnel qualifications that are required by the specifications and any others that the EPC Contractor may perform, and countersign and stamp the relevant documentation. Without limitation, these shall include welding and non-destructive testing (NDT);
- Monitoring all the aspects relating to welding towards achievement of the objective;
- Inspecting discrete features of processes relating to welding and of the construction in relation to welding towards achievement of the objective;
- Maintaining a list of approved welders;
- Assessing all radiographs of welds and
- Regularly reporting on quality measurements as well as progress towards the issue of the final inspection certificate and compilation of the associated substantiating documentation.

The Inspection agency shall in all professional matter acts as a faithful advisor to the OE and will provide all the expert technical advice and skills which are normally required for the class of services for which it is engaged.

The regulation includes following technical jobs specifications related to the Services of the TPI:

- Technical Job Specification 180/1, High Pressure Transmission Systems, Welding Inspecting;
- Technical Job Specification 181/2, High Pressure Transmission Systems, Pressure Testing;
- Preliminary inspection and test plan for the field inspection;
- Technical job specification 970/2, High pressure (HP) transmission systems, Shop inspection of equipment and materials for NGT project;
- Technical job specification 970/3, High pressure (HP) transmission systems, Inspection and test instructions;
- Technical job specification 199/4, High pressure (HP) transmission systems, Welding.

#### 2.5.1.3. TPI's Coordination and Reporting

The TPI point of contact for the execution of its services shall be the OE. The OE shall ensure before the Contracting Entity that the TPI entity shall take responsibility for the following main duties regarding coordination and reporting of the TPI services:

- Ensure that inspection is being strictly performed according to the applicable procedures and relevant technical specifications. The TPI entity shall check with the OE that there is no non-conformance Report raised against a document that is to be used for the performance of the services;
- Cooperate with the OE and attend meetings requested, including pre-inspection meetings;
- Apply all applicable documentation for the performance of the TPI services and distribute to the individual inspectors. Receive from inspectors the inspection reports and forward them to the OE;
- Maintain a register of certification and reports issued by the inspectors with the allocation of unique sequential numbers to all reports and certificates;
- Maintain a register of approved inspection personnel;
- Submit to the OE monthly reports in typed form with a detailed description of the TPI services performed by the TPI entity during the month and

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- Ensure that the monthly report will list all inspection visits performed during the month, with the following information provided as a minimum for every such visit:
  - Inspected items and issued certificates;
  - Type of inspection (indicate the item number as shown on the relevant checklist for activities performed), and
  - man hours spent.

### 2.5.2. Risks and mitigation measures

The OE shall perform a schedule risk assessment and a cost risk assessment based on the Contractual Documents (milestones, pipelines delivery on site, ...). The outcome shall be noted in the overall risk management and the mitigation measures shall be tracked by the action tracking system of OE.

During the Project tender phase, an initial risk management workshop shall be conducted to identify the risks and opportunities of the Project. Furthermore, the OE shall proceed with the further development of the opportunities and specify for the risks the mitigation measure to be implemented during the construction phase or if necessary already in the Project tender phase.

The OE and the TPI will establish risk analysis report regarding Construction activities, identify and analyse each activity in the categories of cause, impact, priority, magnitude, monitoring and implementation.

### 2.5.3. Logistics

In line with the project schedule, the Project Management - Third Party Inspection - team will be mobilised either at Consultant office or on site (construction site or Pipeline factory). The Proposed Project Manager and key manpower are already available from the beginning of the project which enable to commence work on receipt of the Notice of award. The remaining team members will be mobilised as per the project requirement and progress of work respecting the EPC Contractor schedule.

As the schedule of the EPC Contractor is not known, the Mobilization Plan has been built based upon our scope of work understanding and experience of similar project.

Below, the proposed mobilization plan for the shop inspection for the line pipes and field inspection on site for the Greek section.

<b>Position</b>	<b>Mobilization Month (T + XX Months)</b>
<b>Review Technical Pipeline Documents</b>	<b>T0 + 3M</b>
Project Manager	T0 + 3M
Head Engineering Design	T0 + 3M
Greek Third-Party Inspection	T0 + 3M
Signature of the Pipeline Contract	T0 + 3M
<b>Pipemill and Coating Production</b>	<b>T1 + 6M</b>
Project Manager	T1 + 6M
Head Engineering Design	T1 + 6M
Greek TPI Pipeline Inspector	T1 + 3M
Greek TPI Coating Inspector	T1 + 3M
Greek TPI Loading/unloading (check point)	T1 + 1.5M
<b>Start Site Construction</b>	<b>T1 + 4M</b>
<b>Field Inspections Greek Territory</b>	<b>T1 + 4M</b>
Greek TPI Pipeline inspector	T1 + 4M

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T0 = Commencement date under the agreement; T1 = T0 +3M;

*Organization of personnel – allocation of functions and distribution of tasks*

### **Shop inspection for the Line pipes**

- A team on the pipeline factory during the pipe production and coating duration composed by OE including Project Manager, Pipeline Engineer and the (Greek) Third-Party inspectors.

The TPI inspection team will be composed of:

- One pipeline production Inspector, responsible for:
  - The overall inspection activities to be in accordance with the client requirements and applicable specifications.
  - Coordination of inspection activities during production and handling,
  - Witnessing all laboratory testing for pipe manufacture and pipe coating
  - Reviews and countersign all reports generated by pipe-mill
  - Monitoring of plate receipt
  - Witnessing of PQT (Procedure Qualification Trial)
  - Witnessing initial UT calibrations
  - Witnessing of welders and welding methods qualification processes
  - Spot witnessing plate UT
  - Monitoring forming process
  - Monitoring welding process
  - Monitoring the bevel preparation
  - Spot witnessing of weld repairs
  - Spot witnessing of weld seam and pipe ends UT
  - Spot witnessing of hydraulic testing
  - Spot witnessing of final bench inspections
  - Issue the EN 10204 3.2 certificates for each P.O. item
- One Pipeline Coating inspectors) responsible for:
  - Inspecting pipes prior to sand blasting
  - Monitor environmental conditions for sandblasting
  - Monitor pipe preheating
  - Monitor sandblasting pipe surface quality
  - Witness sandblasted pipe surface daily tests
  - Monitor induction heating
  - Monitor FBE application and coating thickness
  - Monitor adhesion application and thickness
  - Monitor application and thickness of PE coating
  - Monitor Holiday Testing
  - Witness peeling tests

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- Witnessing Impact tests on coated pipe surface
- Monitoring of coating repairs
- Monitoring of pipe final inspection and marking

**Field inspection in the Greek Territory**

The Site Team will be structured as follows:

- A full-time team on site during the project duration composed by the OE including Construction Manager and Site Supervision Engineers and
- A TPI field inspection team will be comprised of one Field Lead Inspector resident at site from the beginning of the pipe receipt responsible for monitoring all pipeline construction activities:
  - Receipt of material and equipment at site
  - Equipment calibrations
  - Welding methods and personnel qualifications
  - Pipe laying and pipe welding
  - Guarantee welds
  - NDTs
  - Assessing all radiographs of welds
  - Field joints application and testing
  - Hydrotests
  - Pre & Commissioning

One field inspector to assist the Lead Inspector during parallel critical activities when required

*2.5.4. Description of the approach for providing the TPI services in compliance with requirements of Greek legislation as required in Appendix 2 (Technical specification)*

The Scope of work of the Third-Party Surveillance/Inspection Agency (TPIA) for Quality Surveillance incorporates manufacturing of line pipes, coating of line pipes and pipeline laying to the following:

- Manufacturing of line pipes: Procedure Qualifications tests, first day production testing, regular testing and inspection at all stages of pipe manufacturing;
- External Polyethylene Coating of line pipes: Procedure Qualifications tests, regular testing and inspection at all stages of pipe coating and pipe transportation;
- Issue of EN 10204 3.2 certificate;
- Pipeline Laying and all Station Construction Works:
  - Stringing;
  - Welding, including:
    - Welding Procedure Specifications (WPS)
    - Procedure qualification tests related to Pipeline construction in line with the contract document for pipeline laying;
    - Welder Performance Qualification / Evaluation.

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- NDT, X Ray;
- Field joint coating;
- Lowering;
- Hydro testing, drying, purging;
- HDD / Open-cut /Boring;
- Inspection of all bought-out items & free issue material like valves, line materials, electrical/instrumentation items etc.;
- All Pipeline station construction work or related to various engineering disciplines namely Mechanical, Electrical, and Instrumentation.
- Project pre-commissioning including cleaning & commissioning.
- Issue of Project's Final Certificate according to Greek Legislation

#### 2.5.5.1. Objective of Third Party Quality Surveillance

The objective of a TPIA is to assure high quality management of the works during the manufacturing, construction & commissioning of the pipeline system.

In order to achieve this objective, OE will depute a reputed, experienced and independent Third-Party Surveillance/Inspection for carrying out regular Quality Surveillance/Technical Audits encompassing all the activities during pipeline manufacturing, construction & commissioning of the pipeline system. The Inspection Agency will ensure total conformity of the specifications, requirement of applicable standards, compliance of safe engineering practice and the Greek law.

The TPIA will be working independently under the guidance of the OE. The TPI will be responsible to clearly highlight the inadequacies and non-conformities & ensure compliance with applicable standards (and Greek law) and norms for removal of non-conformities.

#### 2.5.5.2. Activity Completion Report (Generated by TPI)

The Activity completion report shall be generated on the completion of each of the activity/processes performed by TPI Coordinator for the following activities:

- Bought out items of the EPC Contractors (each Purchase Order separately) - Attendance by TPI inspectors during important tests on main equipment including shop and factory acceptance tests (FAT), and performance of detailed inspection where it is considered to be necessary and issuing certificates;
- Manufacturing and Coating of line pipes;
- Pipeline laying;
- Station construction (each station separately);
- Project commissioning etc.

The generated reports will describe:

- Details of the inspection reports for all the visits;

Remark: In the inspection Report, any observation made by the TPI inspector shall be reported in three categories, namely Imperfection, Alertness and Non-conformity (NCR);

- Details of deviations taken during the Project and suggestive actions;

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- Details of type of non-conformities which repeated frequently and suggestions to block their re-occurrence;
- Details of non-conformities which were not closed till the end of the activity and suggestions;
- The report shall be reviewed by a higher level of inspector;
- The report shall be submitted duly signed and stamped.

The different categories of reports covering the entire scope of work indicating Alertness, Imperfections, Non-Conformities etc. depicted through Photographs and Statistics are to be generated by TPIA will be:

- Inspection Reports for each test (during manufacturing of line pipes, Pipeline Laying and Stations Construction Works and commissioning);
- Inspection Reports for bought out items at vendor works of the EPC Contractor;
- Activity Completion Reports for line Pipe Manufacturing, Pipe Coating, Pipeline Laying & Station Works, and Commissioning;
- Project Completion Report.

#### 2.5.5.3. Roles and Responsibilities of the OE

The OE will be responsible for the following:

- Coordinating all activities with TPIA Site Coordinator;
- Ensuring timely deployment of sufficient number of field inspectors synchronizing with the schedule for approval of relevant procedures during the start of work;
- Timely preparation and submission of all reports;
- Participation in review meetings and making a presentation on the QA/QC issues;
- Document up-keeping;
- Any other job that may come up from time to time.

### 3. **Organizational structure**

In providing the organizational structure for the purpose of the order, we have taken into account the fact that it is one of the main factors influencing the way the project is implemented. The OE approach is designed to ensure that work is done by providing good communication both within the team and with the Client and EPC Contractor. The aim is to establish a working relationship of cooperation. That is why in this section are presented the main measures that the Consultant team will take in order to ensure good communication within the team between the experts as well as the planned organization in relation to the achievement of the set objectives and expected results.

We will strive to establish a joint team with the Client and other organizations involved in the project, if any, as well as with the contractor of the EPC and Line Pipe Suppliers at the construction stage. It is expected that when establishing a close and productive working relationship, it will be easier to reach agreements on the main decisions concerning the project and the implementation of all activities within its scope.

The OE considers that the Contract can be successful if all parties adopt a professional, competent and positive approach. Different problems encountered in such projects can generally be

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overcome, provided that such an approach is adopted and implemented. OE offers in its team highly competent and proactive experts to manage the team using a positive expert approach. The OE team will encourage and facilitate a positive cooperative approach between the parties. An important condition for this will be to establish good communication and to apply methods to facilitate the flow of information between project participants.

All specialists, who are the main resource for the project implementation, included in the OE team, who will play a significant role during the implementation of the contract are called "experts". This also applies to the Project Manager. Therefore, this specification, wherever the word "expert/experts" is mentioned, should be taken into account in this documentation, unless expressly stated otherwise. The OE will provide its team with experts who meet the minimum requirements set out in the tender documentation.

The OE team will include experts with professional skills and experience to fully meet the requirements of the Contracting Authority for this procurement. The OE team has the following qualifications and skills:

- consulting on application, implementation, management and reporting of projects funded by European funds;
- exercising supervision and supervision of design process;
- provision of services related to tendering procedures under PPA and awarding of investment activities;
- assessment of the conformity of the project with the requirements of the Contracting Authority and the Bulgarian legislation in the field of construction;
- administration of construction contracts;
- exercising construction supervision during the construction phase;
- contract management;
- planning the implementation, drawing up schedules and carrying out financial control.

From the experience of our consulting team, we can say that each project inevitably encounters unexpected problems. They do not need to be seen as an unresolved difficulty, but as issues that will require a direct and pragmatic approach that is resolved so that the activities can continue. We have considerable experience in dealing with similar issues that arise in such projects. Therefore, a staff of such experience has been recruited to take over the key positions identified in the tender dossier. There is also a support team.

The existing quality procedures in the structure of the OE are oriented towards the implementation of such services and cover activities in each of the phases of the project.

### *3.1. Organization of staff. Allocation of activities, tasks and steps between team members*

OE has selected a team of experienced experts and specialists who fully meet the requirements of the Client and have the following qualities:

- Excellent managerial and executive skills and knowledge;
- Know-how and experience from such projects;
- Excellent knowledge of applicable regulations, local practices and good international engineering practices;
- Understanding local working conditions.

The OE team will include the following experts, possessing qualifications and professional experience, fully covering the requirements of the Contracting Authority and responsible for the performance of the procurement, namely:

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❖ **Key Experts**

- Project manager
- Head of QMS
- Head of the HSSE
- Project management services manager
- Engineering Design Manager
- Construction supervision
- Head of QA/QC and Material Inspection
- KE Independent Inspector 1
- KE Independent Inspector 2

❖ **Non-key experts**

- Supervision of engineering and design
  - o Mechanical Engineer/Engineer on pipelines
  - o Electrical engineer
  - o Engineer on SCADA/ATP
  - o Engineer on the gas pipeline
  - o Construction engineer
- Construction supervision
  - o Deputy Head of construction supervision/Resident Engineer (Bulgarian section)
  - o Resident Engineer (Greek section)
  - o Gas pipeline inspectors
  - o Independent inspector (Bulgarian section)
  - o Inspector of Works
  - o Mechanical/pipeline inspector
  - o Electricity Inspector/SCADA/ATP
  - o Intersections inspector (HDD)
  - o Inspector for "Geodesy"
  - o Inspector for part of water supply and sewerage
  - o Inspector for part of HVAC and Energy Efficiency
  - o Road Inspector
  - o Inspector of the HSSE
  - o Inspector for testing and commissioning
  - o Expert "Land acquisition / right of way" (Greece)
  - o Expert "Land acquisition / right of way" (Bulgaria)
  - o Other experts, if necessary, according to the legislation in force and for more efficient and qualitative performance of the contract.

❖ **Support staff**

- Documentation Control Expert / Administrator

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The OE understands that its specialists have a decisive role in the performance of the works under this contract and that is why we have endeavored to provide experts with proven qualification and professional experience who can work to fulfill this order. The positions of the experts from the OE team will be assigned to experienced foreign and Bulgarian specialists with an excellent knowledge of the implementation of such contracts, Bulgarian legislation and European standards. These experts have already proved their professionalism in the implementation of such projects.

Apart from the above mentioned experts, whenever necessary, the Consultant will be able to provide an additional team of experts to assist the technical and administrative staff and to provide additional assistance for the smooth operation of the core team.

The duties and responsibilities of key experts from the Consultant's team will be as follows but not only:

✓ Project manager

The OE will entitle a person whose task will be, as well as to organize an effective team to lead the project implementation, and be responsible for the management of the execution of contract work, assisted by the other managers responsible for the tasks in their specific areas. At the same time, he will be responsible for the professional ethics and technical capabilities of his team members and will provide any other consultancy and support activities. This expert will communicate with the Contracting Authority on administrative and other issues related to the performance of the contract.

Once the Project is launched, the manager must effectively manage and control the work. He will be responsible for the overall management of the project during Phase 1 "Services during the Tender Phase of the Project prior to the Start of Construction" and Phase 2 "Services during the Project's Construction Phase", including but not limited to:

- Compliance with contractual terms and all applicable legal and regulatory provisions;
- Administration of the OE Contract;
- Represents the Contracting Authority before local and other authorities upon explicit prior authorization by the Contracting Authority;
- Manage the overall schedule to perform the work within the timelimit and budget. Identifying, tracking, managing and solving the problems of the Project;
- Proactive scope management to create only what is agreed unless changes are approved through the scope management;
- Proactive dissemination of project information to all parties;
- Identification, management and mitigation of project risks;
- Delivering results of acceptable quality;
- Identify and collect information about the measurements to get an idea of the progress of the project and the acceptability of the results obtained;
- Resource provision of the OE for the adequate fulfillment of the obligations;
- Managing and coordinating all activities from the OE team of experts;
- Management of the financial and reporting activity of the OE;
- Managing progress meetings with the EPC Contractor and the Line Pipe Supplier;
- Monitoring and management of the interconnections between the EPC Contractor, the Line Pipe Supplier, the Contracting Authority, the Consultant under Art. 166 of the SDA and third parties;

- Managing the work of the OE on the claims of the Contractors and the Client and the procedures for the changes;
- Performs other activities not explicitly mentioned above but necessary for the performance of its functions related to the organizational and expert provision of the work to achieve the objectives of the Project.

In addition to process management skills, the Project Manager should also have good human resource management skills, sharing this responsibility with functional managers. He will achieve the expected results with the help of his team who are not functionally accountable to him. Responsibilities for managing people in the OE team require the Project Manager to have both leadership and management skills, applying them in parallel, which we identify in our chosen expert who will take this position.

✓ Head of QMS

In the sense of ISO 9001, the QMS manager is the representative of the EC with regard to the quality issues relevant to the implementation of the quality management standards and services under this project. The scope of its competencies and responsibilities are mentioned in each section of this Technical Proposal and its Client duties include:

- Developing procedures for setting up and expanding QMS procedures of IGB to the construction phase of the current project;
- Preparation of the necessary project quality documentation, which includes plans, registers and systems;
- Monitoring the proper implementation of the procedures set out in the Quality Plan and/or the procedures thereto;
- Will require the submission of additional documents when required and will give instructions on the quality of the work done, thus assisting other experts in the implementation of the controls and in the acceptance of the works.
- Apply the quality management processes underlying the project management, namely quality planning, quality assurance and quality control.

The Head of QMS will assist the Project Manager by working closely with the Head of QA/QC and Materials Inspections and Experts on the prior approval and review of the QMS of the EPC Contractor/Line Pipe Supplier.

✓ Head of HSSE

The Head of HSSE will participate in the implementation of all phases of the Project in order to monitor the contractor's compliance with its contract in accordance with the procedures developed and established in relation to the Health, Safety, Security and Environment Management System. The responsibilities of the Head of HSSE include the obligation to organize a safety risk analysis which takes into account the current requirements of the local legislation, both on Bulgarian and on Greek territory.

The Head of HSSE will conduct regular audits and reviews of HSSE statistics, including checking the management and plans of the EPC Contractor and the Line Pipe Supplier, as well as the procedures developed in them, if they meet the relevant standards, the Contracting Authority's requirements and the best existing practices in this field and their compliance and implementation during project implementation. It will control all safety issues at work to be resolved in accordance with building legislation. He will attend meetings convened by the EPC Contractor concerning the HSSE and will review the attendance lists and the minutes of these meetings.

Immediately after the Head of HSSE establishes discrepancies, his obligation is to notify the parties concerned with a view to a prompt reaction by the EPC Contractor and corrective actions.

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Regarding the responsibilities of the Head of HSSE on environmental protection activities, they include without limitation the following:

- monitoring the development of plans for the timely and systematic organization of safety checks during the design, construction and commissioning of the Project and attending such inspections on behalf of the Contracting Authority to ensure that the approved procedures are duly followed and implemented (for the Bulgarian section, taking into account item 186, paragraph 1, item 4 of the Spatial Development Act);
  - implementation of the design measures defined in the relevant assessments, approved project documentation, regulations and permits;
  - monitoring compliance with the studies provided by the authorities, including, without limitation, environmental impact studies on the territories of Bulgaria and Greece;
  - assisting the Contracting Authority in monitoring the EPC Contractor for compliance with environmental protection requirements.
- ✓ Project management services manager

The project management services manager will be responsible for providing the OE with all project management services that are affected by the terms of reference of this procurement in order to ensure that the objectives of the Client will be achieved in accordance with the breakdown developed and subsequently approved by the Client by Activity and Project Implementation Plan (PIP). He will be in constant contact with and interact with the Project Manager due to the interdependent responsibilities that the two managers have in terms of project management.

The Leader will prepare a project charter that will formally identify the start of the project phases and document the initial requirements that meet the Client's needs and expectations. The scope of its duties includes the implementation of the basic project management processes groups that have clear dependencies, namely:

- Initiation processes - they are conducted to define the project and its phases 1 and 2, including the development of the project charter and the identification of parties;
- Planning process activities - implemented to establish the scope of the project, refine the objectives, define the direction of action needed to achieve these objectives, and include:
  - Developing the project implementation plan (PIP);
  - Determining the sequence, resources and duration of the activities after defining the scope;
  - Assessment of costs and budgeting;
  - Developing a human resources plan for the OE;
  - Communication planning;
  - Planning of risk management, risk identification, qualitative and quantitative risk analysis, risk response planning (e.g: Initial risk management seminar to identify risks and capabilities of the project as well as follow-up seminars for development of the Contracting Authority's further objectives with respect to the Project);
- Implementation processes activities - they are performed by the Project Manager to implement the assigned work in order to comply with the project's technical specifications and include:
  - Targeting and managing the implementation of the Project;
  - Developing and managing the project team of the OE;
  - Dissemination the information to involved parties as planned;

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- Managing the interested parties' expectations - meeting their needs and resolving problems;
- Monitoring and control processes are needed to track, control and regulate the progress and implementation of the project, as well as identify areas where the plan needs to be changed and their initiation accordingly. These include:
  - Integrated Control of changes;
  - Verification and scope control;
  - Control of the schedule, cost, quality;
  - Reporting performance;
  - Monitoring and control of risks;
- Closing processes - The manager should execute them in order to finalize all activities from all groups processes for the formal completion of the project or the relevant phases of the project.

Undoubtedly the scope of work of the Project Management Services Manager has a key role to play in the activities that are outlined in the Project Management Services section of this Procurement. In the previous sections of this technical proposal we have shown in tabular form its participation in the specific activities.

✓ Engineering design manager

Directly subordinate to the Team Leader, this expert will be responsible for managing the review and supervision of the detailed design, prepared by the EPC Contractor. He will lead the team of experts who will review the documentation prepared by the Contractor and will comment on the extent to which these documents comply with the requirements of the Construction Contract (including its annexes containing the technical design for Bulgarian territory and FEED for Greek territory ) and the existing technical documentation provided by the Contracting Authority. In section 2.2. of this technical proposal, we have detailed the distribution of specific tasks and tasks for the implementation of engineering assistance during the design phase. It is important to note, however, the main responsibilities and liabilities of this expert during the procurement phase of the EPC Contractor and subsequently the development of the detailed design and the actual construction including but not limited to:

- receive the documents of the EPC Contractor and check that they were prepared in accordance with the contractual documents/requirements;
- to maintain contact with the Client-Contracting Entity and the EPC Contractor on issues related to the detailed design and the progress of the project documentation activities;
- assist the Project Manager in all his design duties;
- to help ensure continuous, transparent, timely and consistent design progress;
- ensure that the design complies with the technical regulations, the requirements of building legislation, construction of buildings and facilities and environmental protection, as well as other laws applicable to the project, as well as any regulatory standards specified in the Client's assignment applicable to the works or incorporated into applicable laws;
- to issue notifications to the Contracting Authority in cases where a document of the EPC Contractor does not meet the requirements of the Construction Contract, which will then be duly sent by the Engineering Design Manager;
- to make notifications to the Contracting Authority for approval of a document of the Contractor, with or without relevant comments to the Contractor, which will then be duly sent by the Engineering Design Manager;

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- ensure the management of project design results stoppings of the EPC Contractor and monitors the resolution of all stops to achieve finalized status;
- ensure on behalf of the Client the correct recording and archiving of the technical results up to the moment of transmission of the as-built drawings and documents;
- develop cost-effective analyzes throughout the entire design work for identifying and solving factors that could lead to increased cost and effort in design;
- notify the Project Manager of the need to prepare additional documents to the Contractor;
- prepare statements on the design documentation prepared and answer technical questions from the designers;
- take part in design meetings.

✓ Construction supervision manager

During the construction phase, the Construction Supervisor will control and supervise on behalf of the Contracting Authority the work of the EPC Contractor and the Line Pipe Supplier, interacting with both the other key IT experts and managers of the construction supervision, according to the SDA. As main duties in the scope of its expertise it is envisaged to perform the following main activities, but not only:

- Compliance with the project timetable by the EPC Contractor and the Line Pipe Supplier;
- Ensuring observance of all requirements of the Construction Contract, Quality and in compliance with the applicable normative documents, standards and specifications by the EPC Contractor (including subcontractors)
- Monitoring compliance with all requirements for quality and quantity of delivered pipelines set out in the Purchase Agreement and Project schedule;
- Ensuring that all material and test inspections relevant to the work of the EPC Contractor and the components of the pipeline system and correct documentation are carried out correctly;
- Monitoring the proper delivery of equipment and building materials as well as their subsequent storage on construction sites;
- Control of building documentation incl. as-built drawings and operating manuals;
- Coordinating the distribution of all review papers and comments submitted by the EPC Contractor and the Line Pipe Supplier during the construction and installation activities;
- Monitoring compliance with the Activities Schedule as well as the Project Schedule;
- Notification

✓ Head of QA/QC and Materials Inspection

This manager is responsible for the supervise activities of the EPC Contractor and the Line Pipe Supplier by reviewing:

- all inspection and test plans;
- testing procedures;
- all documents and requirements for the QA/QC on both contracts (e.g: Quality Assurance Plan for the EPC Contractor and the Line Pipe Supplier, etc.).

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In accordance with the terms of reference of this order, he is responsible for the following, but not limited to:

- ensure the correct application of the QA/QC requirements for the Construction Contract, respectively the contract of the Line Pipe Supplier;
- be responsible for monitoring the development and implementation of quality assurance programs by the EPC Contractor and the Line Pipe Supplier and reviewing their adequacy for their implementation and informing both contractors accordingly;
- develop and maintain a test and inspection plan, including all activities related to relevant contracts and applicable specifications;
- has the primary responsibility for the quality of the activities and delivered goods and monitors all construction activities in order to ensure compliance with the approved drawings and specifications;
- together with the Independent Inspectors, will monitor the commissioning of electrochemical protection before the commissioning of the gas pipeline, however no later than six months after its installation into the channel, regardless of whether the entire pipeline is installed;
- audit the work of the EPC Contractor and the Line Pipe Supplier against the requirements of their respective contracts on the basis of a subsequently prepared Audit Plan approved by the Contracting Authority;
- presentation of audit reports on the activities of the Contracting Authority with a copy to the EPC Contractor and the line pipe supplier;
- keep and update an audit log to track inconsistencies and corrective actions until the end of the relevant contract;
- is responsible for notifying the contractor (EPC Contractor or the Line Pipe Supplier) contractor's discrepancies under the contracts, plans, procedures, best practice and applicable legislation;
- track and confirm the probability of inconsistencies and identify potential recurrence of inconsistencies that have common causes;
- review and approve, modify, amend or reject the quality plan provided by the Line Pipe Supplier, in which product quality control is determined;
- is responsible for the storage, management and administration of an electronic list of defects for removal of the gas pipeline system, which should contain all the defects, shortcomings, deficiencies and inconsistencies with the requirements of the Construction Contract that were established during the construction and to be a place on the gas pipeline system;
- guarantees the independent inspector to plan his activities in relation to the test and inspection plan and other QA/QC documents, managed by the Head of QA/QC and material inspection.

The Head of QA/QC and Materials Inspections monitors the development and proper implementation of quality assurance programs by the EPC Contractor and the Line Pipe Supplier and reviews the adequacy of their implementation and informs both contractors. In the event of inconsistencies, it will be a concern to return with comments and correction requirements to the EPC Contractor and the Line Pipe Supplier.

Also, under the responsibility of the Head of QA/QC and Material Inspection, the maintenance and monitoring of the testing and inspection plan covering all activities with regard to the relevant contracts and applicable project specifications, is included.

✓ KE Independent Inspector 1 and KE Independent Inspector 2

The activities of the Independent Inspectors will be planned in accordance with the test and inspection plan and other QA/QC documents, which are detailed in the tables of plans, registers and reports to be developed for the purposes of the project. Their main duties will include, but are not limited to:

- field inspection of construction works on Greek territory in accordance with the Technical Specification 181/2, High Pressure Systems, Pressure Testing; 180/1 Technical Specification, High Pressure Transmission Systems, Welding Inspection; Technical Specification for Work 970/2, High Pressure Transmission Systems, Factory Testing of Equipment and Materials for a Natural Gas Transmission Project and Factory Inspection of the Line Pipe Supplier for the Project as a whole;
- issue of an inspection report and certificate according to EN 10204, type 3.2;
- presence at meetings when reasonably requested, including meetings prior to the inspection;
- visit and presence at the sites of the line pipe manufacturer by reviewing their documentation for compliance with their specific requirements and stamping them on confirmation;
- presence of all the tests required by the specifications and all others that the supplier can perform and sign and seal the test documentation;
- review and approve the Contractor's Start-up and Release procedures;
- participates in the preparation of the start-up works and commissioning before the commencement of these activities;
- presence of field tests on the construction activities on Greek territory, incl. hydraulic tests on line pipes or other pressure equipment;
- observe all aspects related to welding;
- evaluate non-destructive testing methods (e.g: radiographic evaluation/testing, ultrasonic testing/evaluation, magnetic particle testing/evaluation, fluid penetration testing/assessment);
- review the training plan of the EPC Contractor and provide recommendations and amendments if necessary;
- interact with the EPC Contractor in monitoring the training, transmission of the pipeline system, preparation for the project and maintenance of the pipeline system and equipment during the commissioning and testing of the project;
- verify that all the user manuals for the equipment and installations developed by the EPC Contractor are available and are prepared so that they are comprehensible to the operating personnel.

The specific activities that independent inspectors will perform are already outlined in Section 2.5. of this document. As stated in the terms of reference of this contract and its annex - Preliminary plan for inspections and testing, the scope of duties and responsibilities of independent inspectors may be needed for the inspection and related to the construction of the pipeline on Greek territory.

Independent experts will work in close cooperation with non-key experts - Pipeline Inspectors 1 and 2, who will be responsible for those activities that will be carried out on Bulgarian territory.

As we mentioned above for the purpose of the project and depending on the specifics of the certain activities, we will also provide an additional team of non-key experts who will assist the managers to execute the order. Non-key experts are selected by the OE according to needs in accordance with the profiles and activities described in the terms of reference for this Tender and the Technical Proposal submitted. All non-key experts will have higher education and relevant professional experience for the position for which they are offered.

The resource of non-key experts we intend to use to maximally meet the requirements of the Contracting Authority in the execution of the Service Agreement and the successful implementation of the Project is consistent with the defined stages of service delivery.

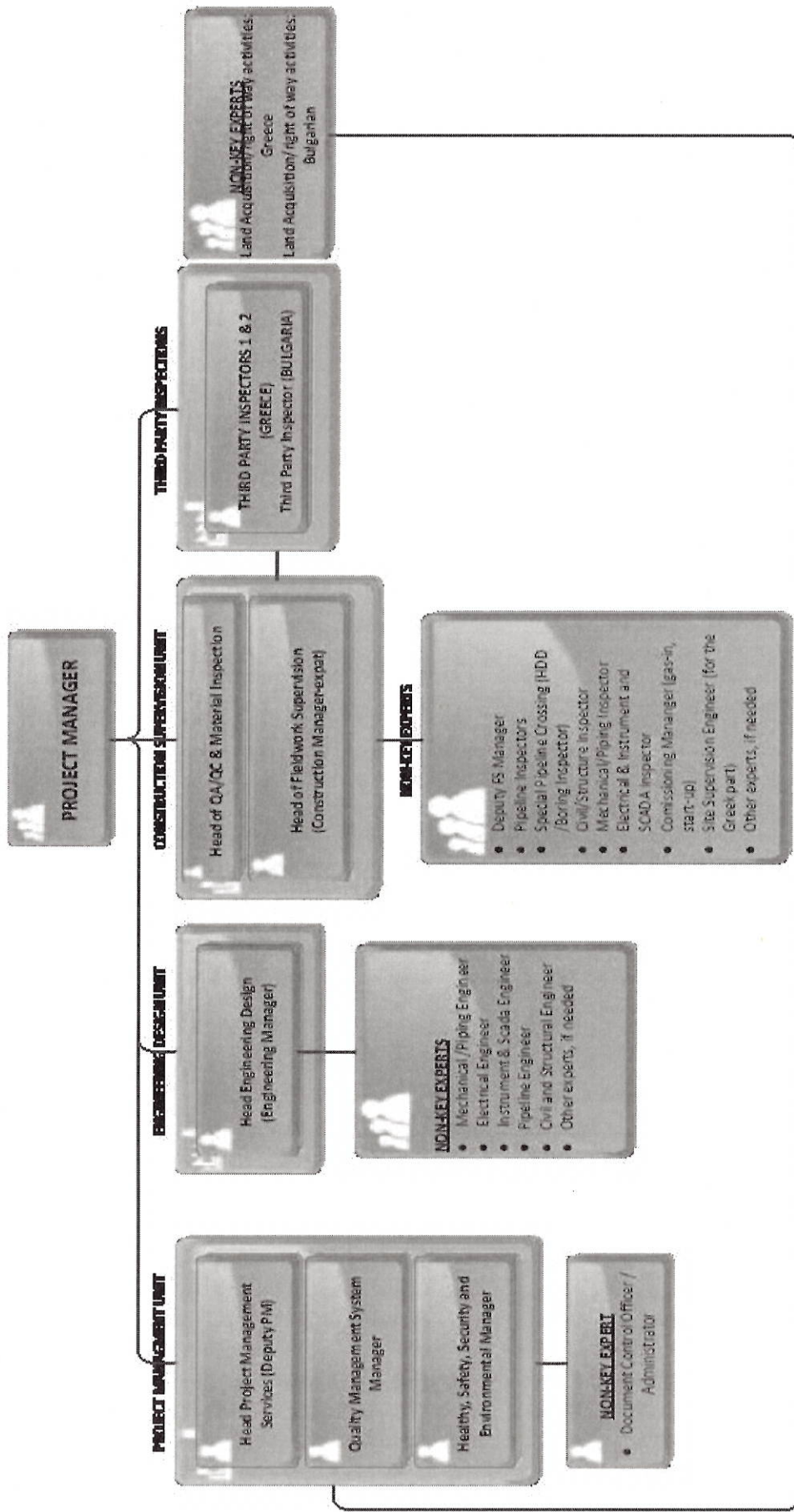
Guarantee for the successful implementation of this order, is that the formed team consists of experts who are specialists in the engineering sector, very well acquainted with the applicable law of the European Union, the Bulgarian and Greek legislations and have experience in such contracts. The team has proven itself both as an established expert in the implementation of contractual procedures and in the implementation of European and national quality standards. The availability of a Quality Management Certificate is an additional guarantee for the ability to adequately manage the project and to follow a unified standard when performing the activities under this contract.

*3.2. Allocation of functions and positions in the OE team. Lines of reporting, communication and coordination. Relationship of the OE team with the Client's team and way of coordination*

A very important environmental point of the organization is the organizational structure and the proper distribution of responsibilities within it as well as the constant control over the proper use of the system by all users in the OE team.

The organizational structure for implementing the project during the implementation of the engineering assistance activities, presenting the main team of experts for the execution of the contract, the interaction and the subordination between them are shown in the following diagram:

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As may be seen from the organizational chart above, we have structured and developed the OE's design team conditionally in 4 basic units, which should cover the full scope of the Service Agreement activities. The project manager will apply effective leadership from the outset of the project across all departments as this is the time to focus on motivating the project participants by focusing their efforts on their team for teamwork and achievement of the expected results under the Contract. The project management team is part of the project team and is responsible for the project and management activities such as project initiation, planning, monitoring, control, administration and completion of Phase 1 and Project 2. This group can be called "administrative unit" or "management team". Given the scale of the project, the responsibilities for its management are shared between the Project Management Services Manager, the Head of QMS and the Head of HSSE, assisted by the Non-Key Expert Documentation Controller/Administrator.

Given the nature of engineering and design activities, we have set up a separate Engineering and Design Supervision Unit, which is managed by the Engineering Design Manager. In this unit, we have foreseen that the manager should be assisted by the non-key experts on the relevant project sections and, if necessary, will provide additional expertise.

During Phase 2 of the project, the Construction Supervision Unit will be involved in the implementation of the construction supervision activities, with the project supervisor working together to supervise the Construction Supervision and the Head of QA/QC and Materials Inspection. The managers have the duty and responsibility to maintain open and effective communication between the members of the expert team at the key stage of the project development, namely its actual implementation.

As set forth in the terms of reference of this order and in accordance with the legal framework in Greece, as a separate independent unit, we have identified the Independent Inspectors who perform the inspections and tests of the gas pipeline to be built on Greek territory. They will, in turn, coordinate with the Heads of the Construction Supervision Unit and work closely with the Pipeline Inspectors responsible for the implementation of the Bulgarian territory. The approach that non-key experts will apply to field inspection and testing of the construction of the pipeline on Bulgarian territory will be as high as possible to the standards for carrying out these activities as recorded in the field inspection technical specifications attached to the documentation of this order, without prejudice to Bulgarian legislation and local regulations.

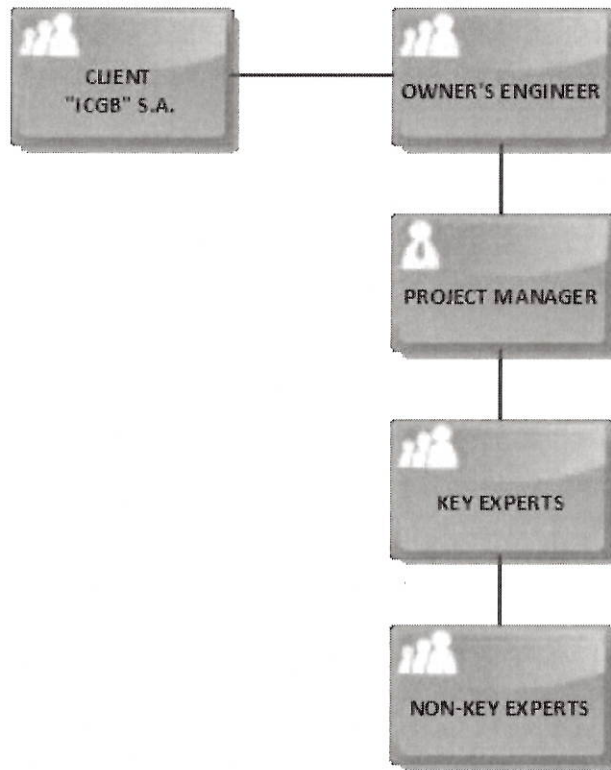
In order to efficiently and effectively assist the Client in the Project Management process, we will distribute the functions and positions between the key and non-key experts in a way that ensures the consistency and balance of the contract management process and the interaction with the representatives of the responsible persons. After initial acquaintance with the baseline information and the course of implementation of the activities as well as on the basis of the above-mentioned planning of tasks implementation, a system of control over the current performance of the activities of the individual members of the OE will be created, guaranteeing the highest degree the successful implementation of assigned tasks and functions. The control will be combined with immediate communication between the members of the OE, aiming at maximizing the results of the accomplished tasks and their timely completion.

#### ❖ **Ensuring good communication**

Ensuring good communication both within the team and with the Client is critical to the successful implementation of the contract that is the subject of the contract and hence of the project. That is why in this section are presented the main measures that the OE team will take in order to ensure good communication within the team between the experts, the Client, as well as the planned organization in connection with the achievement of the set objectives and expected results. In the diagram below, we graphically present the interaction between the OE and the Client, namely:

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## LIASON SCHEME BETWEEN OWNER'S ENGINEER AND THE CLIENT



From the very beginning of the implementation of the contract, a working meeting will be organized with all the experts within the team, which will inform them about their obligations regarding the implementation of our activities and functions under the contract, we will discuss and allocate the tasks and responsibilities between our experts.

In order to ensure effective coordination and communication between experts, we foresee working meetings of the OE teams and the Client at least once a month, and when it is more often necessary to solve a specific issue.

An important role in the process of communication and teamwork of members is played by the Project Leader of this procedure.

The official internal communication will be by e-mail or paper form through the predefined forms in the project implementation plan. The communication between the different organizational levels of the OE is carried out in the respective hierarchical order in succession from top to bottom and bottom up without skipping levels. Communication within one organizational level is done with mandatory notification at the higher level by e-mail or paper.

An important condition for the successful project implementation is the execution of a Project Implementation Plan which will define the procedures and forms of accountability and control by the OE team, thus ensuring the quality performance of the activities according to the applicable standards.

OE ensures that the project will follow strict quality management rules in line with ISO standards, and QA and Quality Control (QC) procedures. OE has implemented an ISO 9001 - quality management system for all activities in order to ensure a reliable and permanently stated quality level.

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The existing quality procedures in the structure of the OE are oriented towards the implementation of such services and cover activities in the pre-construction and construction phase of the project.

The OE will plan the necessary resources and staff to ensure the full implementation of the quality system requirements.

As part of the Project Implementation Plan and in order to ensure transparent communication, in the initial phase of the project, the OE will develop a web-based document management system that has the following advantages:

- Upload, download, and review of documents can be done by any office. Access rights ensure that certain documents can not be reached by unauthorized users;
- All project documentation, letters, minutes of meetings, reports are prepared centrally. The Expert/Party responsible for the preparation of the document will have the responsibility to upload the file to a predefined folder;
- DVDs with all files can be prepared at the end of the project, so structured and complete project information can be distributed on demand;
- A DMS could illustrate the flow of payments (a special tool that will be created by the Consultant);
- Uncontrolled distribution of documents by hand, e-mail, letter or courier is not allowed;
- The flow of the documentation is controlled;
- Allows state control and review of drawings and reports, other documents;
- Significantly saving resources (human and time) for the implementation of activities, etc.

A very important point is the distribution of responsibilities and constant control over the proper use of the system by all users in the OE team.

The relationship between the Consultant and the Client will be determined primarily in accordance with the terms of the Agreement and the requirements of the Terms of Service, in terms of transparency, partnership and close cooperation that we consider to be key to the successful implementation of the Project.

It is assumed that the Client expects to receive comprehensive advisory assistance and in this direction the OE will work.

Our objective is to pool our experience, capacity and resources so that we can provide the Client with the best possible service that combines long-standing technical expertise, in-depth knowledge of Bulgarian and Greek legislation, EU regulations, know-how of the company, etc.

It is assumed that the tasks of the OE will be carried out in close cooperation with the Client's staff, on the part of the Participant, the relationship with the Client at the level of the Managing Authorities will be carried out by the Project Manager and/or by the Managing Director of the Owner's Engineer .

The interaction between the OE and the Client will be achieved through continuous communication and collaboration.

During the project, the OE will notify the Client of all actions, decisions or approvals it deems necessary and appropriate to speed up the implementation of the activities and maintain control over the costs. It is envisaged that the OE will implement and maintain a quality system.

There will be regular (weekly and monthly) formal and informal meetings between the organizational units of the Contracting Authority and the Consultant's team. Progress reports and other reports in volume and content will be prepared as required by the Contracting Authority for

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reporting. The Project Management Services Manager will prepare minutes of the meetings that will be provided to the Contracting Authority and other participants for comments and for signature respectively. The reports will be provided on time and when not specified - depending on the event to which they relate.

➤ **Correspondence**

The Owner's Engineer team will maintain a continuous relationship with the Client and its organizational units, using various conventional, electronic and online tools, including:

- Conventional mail, e-mail and telephone connections;
- Courier services for the transfer of documents;
- Registration of documents in the Client's records office;
- Methods for telephone conferences and others.

The correspondence will be conducted according to the procedures established in the project implementation plan. All forms of communication will also be defined in the plan but also agreed in advance with the Client.

Any written communication between the Client and the OE concerning this contract should include the title and the contract number and be sent by post, fax or handed to the address. Sending by fax will not release the parties from transferring the documents sent in the original (or paper copy, certified by the party - for copies).

Correspondence (all communications) relating to this Agreement will be deemed to be valid if it is made in writing by authorized representatives of the parties and sent to the respective addresses/fax numbers specified in the contract. If either party changes its address/fax number, it should immediately notify the other of the changes made.

➤ **Conducting meetings**

The relationship between the Consultant and the Client will be determined primarily in accordance with the terms of the Agreement and the requirements of the Technical Specifications under the terms of transparency, partnership and close cooperation that we consider to be key to the successful implementation of the project.

Throughout the implementation of the project, regular and informal meetings between the OE and the Contracting Authority are scheduled to take place.

Essential is the so-called Introductory meeting. This meeting should be held on the commencement date of the Contract after its signature. The Project Manager and representatives of the Client will be present at the meeting.

The OE will prepare and submit to the Client a Meetings and Monitoring Plan. In its preparation, the criteria set during the initial meeting and the requirements of the Contracting Authority will be respected.

Meetings are scheduled to take place:

- Coordination meetings;
- Meetings of progress.

Monthly meetings will be held once a month.

Regular meetings will be attended by all OE experts according to their responsibilities and duties and at the discretion of the Project Manager. In addition, all parties involved in the project will be

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invited, but most importantly representatives of the Client and Contractor of the EPC and the Line Pipe Supplier.

➤ **Reports and Progress Reports**

The Owner's Engineer will prepare and submit reports and documents within the defined scope and deadlines.

The format of all statements and reports will be agreed with the Client prior to commencement of the OE's activities under this contract.

The types of reports that will draw up the OE in the implementation of Phase 1 and Phase 2 project implementation activities are described in the tables above in sections 2.2.4 and 2.3.4.

Each report will include a brief summary to synthesize its contents in 2-4 pages, allowing decision-makers to have a complete, concise and clear view of the status of the project without having to read the entire report.

The Client shall inform the OE of its decision on the submitted reports, stating the reasons if they are rejected or require changes. If the Contracting Authority does not comment on the documents or reports, the OE may request their acceptance in writing.

In the course of the project implementation, the Client will receive information on the progress of the work by the OE; justifications of the documents/reports prepared by the Consultant or a corresponding part of them if they do not meet the requirements of the Contracting Authority; processing of each parts of the documents/reports presented by the OE if they are incomplete or do not correspond to the content and quality of the requirements. The Contracting Authority may at any time control the execution of the Contract as long as it does not hinder the work of the Owner's Engineer and does not violate its operational autonomy, as well as to issue instructions at the request of the OE in the course of the performance of the assigned job.

The Contracting Authority should provide the OE, in a timely manner, with any available information of its competence and/or documentation necessary for the successful performance of the contract. The Client assists the Consultant before the Bulgarian and Greek authorities when it is able to do so for the purpose of performing the Consultant's contractual obligations.

Specific plans, reports and registers for which key experts are responsible and/or to be prepared, are described in the table below:

✚ **Plans, schedules and systems**

<b>№</b>	<b>Type of document</b>	<b>Made by</b>	<b>Responsible expert from the IC</b>
<b>1</b>	Project Implementation Plan (PIP)	OE	Project manager Head of QMS Project Management Services Manager
<b>2</b>	Schedule for detailed review	OE	Project manager Project Management Services Manager Head of QA/QC and Material Inspection
<b>3</b>	Master Management Schedule	OE	Project manager Project Management Services Manager Head of QA/QC and Material Inspection
<b>4</b>	Impact Management Plan	OE	Project manager Head of QMS

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			Project Management Services Manager
5	Engineering management plan (and procedures)	OE	Head of QMS Project Management Services Manager
6	Control plan	OE	Head of QMS Head of QA/QC and Material Inspection KE Independent Inspector 1 KE Independent Inspector 2
7	Workforce Plan	EPC	Construction supervision supervisor
8	Delivery plan	Line Pipe Supplier	Head of QA/QC and Material Inspection KE Independent Inspector 1 KE Independent Inspector 2
9	Inspection and field inspection test plan	OE; EPC Contractor	KE Independent Inspector 1 KE Independent Inspector 2
10	Safety Management Plan	EPC	Head of the HSSE
11	Audit plan for the work of the two contractors	OE	Head of QMS Head of QA/QC and Material Inspection
12	Quality plan	Line pipe supplier; OE	KE Independent Inspector 1 KE Independent Inspector 2
13	Training plan	EPC Contractor	KE Independent Inspector 1 KE Independent Inspector 2
14	HSSE Plan	EPC Contractor and Line Pipe Supplier	Head of the HSSE
15	Plan for the implementation of activities and/or services	EPC Contractor and Line Pipe Supplier	Project manager Project Management Services Manager Construction supervision supervisor
16	Initial Schedule of the Project/ Program	OE	Project manager Project Management Services Manager Head of Engineering Design Construction supervision supervisor
17	Project Schedule	EPC Contractor	Project manager Project Management Services Manager
18	Schedule of the main stages of the Project	EPC Contractor	Project manager Project Management Services Manager
19	Schedule of construction	EPC Contractor	Project manager Project Management Services Manager Construction supervision supervisor
20	Schedule for final installation, acceptance and	EPC Contractor	Project manager

	commissioning of the Project	and Line Pipe Supplier	KE Independent Inspector 1 KE Independent Inspector 2
21	Progress measurement system	OE	Project Management Services Manager
22	Material identification system	EPC Contractor	Head of QA/QC and Material Inspection
23	Quality management system	OE	Head of QMS
24	Health and Safety Management System	OE	Head of the HSSE
25	Document Management System	OE	Head of QMS

#### ↓ Reports and statements

No	Type of document	Made by	Responsible expert from the IC
1	Monthly reports	OE	Project Management Services Manager Construction supervision supervisor
2	Technical and commercial EPC evaluation report	OE	Project manager Head of Engineering Design Construction supervision supervisor
3	Reports on Completion/Delivery by the EPC Contractor	EPC Contractor	Construction supervision supervisor KE Independent Inspector 1 KE Independent Inspector 2
4	Design Review Report	OE	Head of Engineering Design
5	Report on the HSSE	EPC Contractor	Head of the HSSE
6	Audit reports on the activities of the OE	OE	Head of QA/QC and Material Inspection KE Independent Inspector 1 KE Independent Inspector 2
7	Inconsistency reports	OE	KE Independent Inspector 1 KE Independent Inspector 2
8	Test reports	OE	KE Independent Inspector 1 KE Independent Inspector 2
9	Inspection reports	OE	KE Independent Inspector 1 KE Independent Inspector 2
10	Monthly reports on the services performed by the independent inspector	OE	KE Independent Inspector 1 KE Independent Inspector 2

#### ↓ Registers and lists

No	Type of document	Made by	Responsible expert from the OE
1	Register of Facilities	EPC Contractor	Head of the HSSE
2	Invoice Register	Client and OE	Project manager Head of QMS
3	Register of contracts	Client and	Head of QMS

2 A 149

		OE	
4	Risk Register	OE	Project Management Services Manager
5	Register of technical issues	OE	Head of QMS Construction supervision supervisor
6	Document Control Registers and Final Drawings	EPC Contractor	Head of QMS
7	Audit Register for tracking discrepancies and corrective actions	OE	Head of QMS KE Independent Inspector 1 KE Independent Inspector 2
8	Register of certificates and reports	OE	KE Independent Inspector 1 KE Independent Inspector 2
9	Register of approved personnel performing inspections	OE	KE Independent Inspector 1 KE Independent Inspector 2
10	A list of defects	OE	Head of QMS Construction supervision supervisor

An important condition for the purpose of successful joint work and interconnections as well as the achievement of the results is that the Owner's Engineer is duly authorized by the Contracting Authority to represent him for the purposes of the contract performance within the framework of the assigned tasks and contract powers.

### 3.3. *Lines of communication, information exchange and coordination of the EPC Contractor and the Line Pipe Supplier in the process of project implementation*

The interrelations, contact points, ways of interaction and work between the Owner's Engineer, the Contractor, the Line Pipe Supplier and the other project participants, such as Design Supervision and Construction Supervision, are bidirectional and imply transparency, consistency and close cooperation.

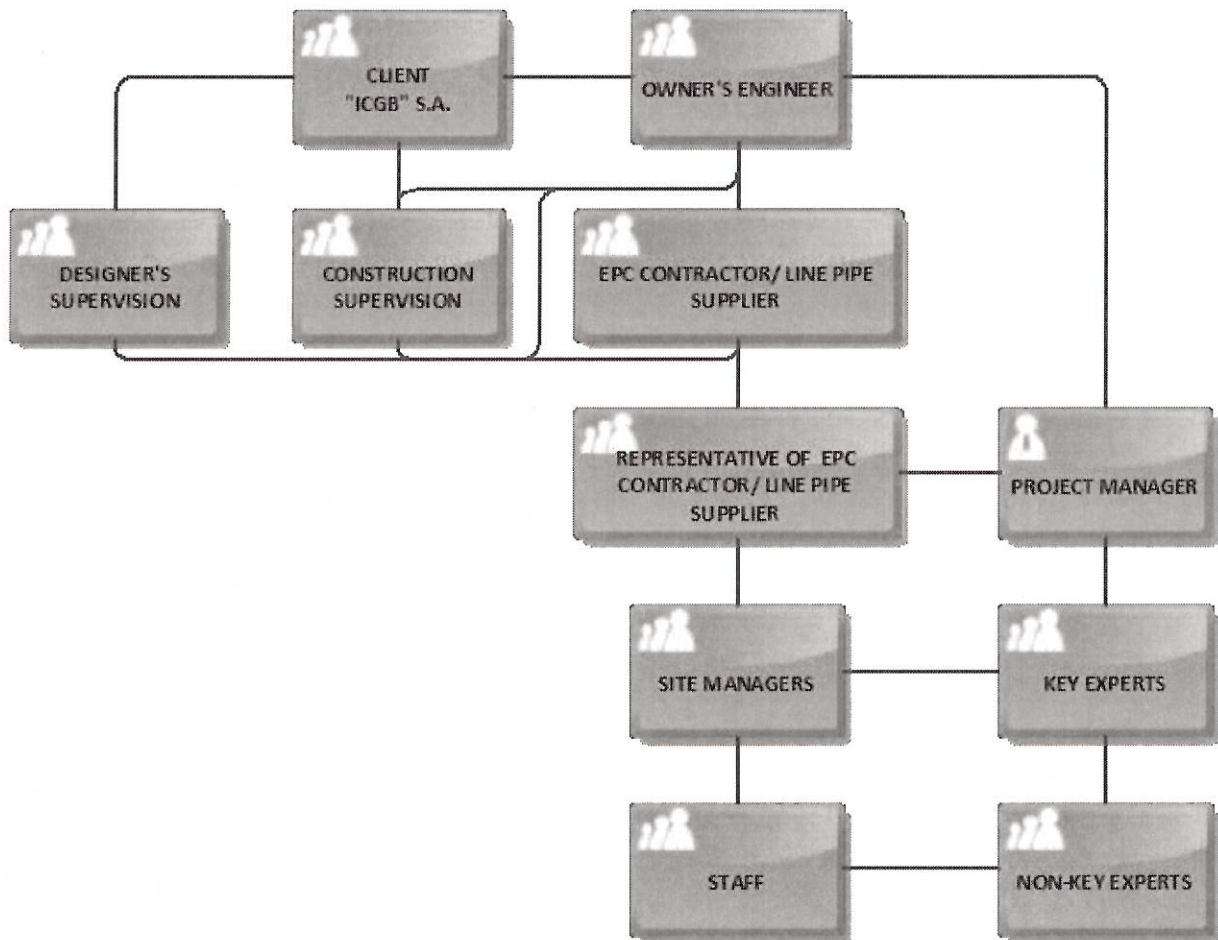
The Contractor and the Line Pipe Supplier are required to perform the works on time and at the strictly defined standards in the project, according to the approved drawings and documents.

The EPC Contractor and the Line Pipe Supplier will provide information, documents, design that the OE should check and in case of inconsistencies the remarks should be removed as well as promptly responding to the questions and comments of the OE, the Contracting Authority and /bodies and instances.

The OE will monitor the progress of the Contract for the EPC Construction and Supply of Line Pipes in accordance with the defined progress indicators and will assess the requests for payments made by the EPC Contractor and the Line Pipe Supplier and the compliance with the actual works will accept work, reports, documents, etc., by professionally and transparently stating its arguments and position to the EPC Contractor and the Line Pipe Supplier, referring to accepted standards and norms.

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**LIASON SCHEME BETWEEN THE PARTIES IN THE PROJECT IMPLEMENTATION PROCESS**



For the successful management of communications in the Project it is imperative to achieve full engagement and cooperation of the OE team with the key parties.

In the course of the implementation of the activity, the OE will receive periodic information on the extent of its implementation and on the possible problems in its implementation by the EPC Contractor and the Line Pipe Suppliers. Thus, subsequent communication will be established, such as the exchange of information and ideas from the Project Team to the Client.

The OE will organize the communication activities during this public procurement in a way that allows the most efficient and effective use of the intended resources and the achievement of the best possible results using all types of communication methods,

- Interactive communication - a multi-directional exchange of project-related information will be made between key parties, thus ensuring a common understanding of all participants on specific topics (e.g: technical issues related to the implementation of a type of work) and will include meetings, telephone conversations, video conferences and more.
- Push-up communication - depending on the specificity of the information, this method will be sent to specific recipients directly affected. This type of communication ensures that the relevant information is disseminated and reached the target audience. It includes letters, notes, reports, e-mail, fax, and more.

*Handwritten signature*

- Pulling communication - will be used for large volumes of information and for a very wide audience. Recipients themselves will choose the method of accessing this information. This method includes intranet connection, e-learning, cloud, and more.
- The project manager, together with the project management services manager, decides on the basis of communication requirements when, how and what communication methods to use in the project.

➤ **Conducting meetings on the implementation of the investment project activities**

The accumulated experience shows that, in addition to periodic meetings, the company's experts should also participate in the meetings of the Contracting Authority with the EPC Contractor and the Line Pipe Supplier. Depending on the purpose of these meetings, the experts will prepare statements on the issues raised or the quality of the materials under consideration. At the meetings held, the experts will answer questions related to the statements made and/or will participate in the discussions. For some key meetings and in the event of unexpected problems, we suggest that preliminary meetings be held between the Client and the Owner's Engineer in order to develop a well-founded position of ICGB to the EPC Contractor and Line Pipe Supplier to resolve emerging issues.

➤ **Official correspondence - presented by hand**

Most of the correspondence will be presented by hand. We propose that this be done with a hand-delivery protocol, which will describe the documents submitted. The minutes will be prepared in 2 (two) identical copies, one for each party.

➤ **Official correspondence sent by fax**

Where necessary, correspondence between the Owner's Engineer and other key parties may also be done by faxing, in which case it is necessary to receive written confirmation from the other party that the correspondence has been received. The party receiving the correspondence will have to send a written confirmation that the correspondence has been received. In all cases, the sending Party will take all necessary measures to ensure receipt of the correspondence.

➤ **Unofficial correspondence**

Any correspondence other than the one described above will be considered unofficial. The main purpose of this correspondence is the rapid exchange of data and/or information related to the operational activity of the project.

For the needs of informal correspondence, the OE offers to use e-mail.

➤ **Oral communication**

Any oral information from the Client and/or from the company of particular importance to the project will have to be formalized and confirmed in writing, for example through the minutes of the meetings.

Interaction at the level of leadership between the parties will take place through the parties authorized to do so by each of the parties.

➤ **Reporting**

Reporting on the implementation of the Project by the EPC Contractor and the Line Pipe Supplier will include documents that will reflect the status of the project and the measurement of progress as well as forecasts of forthcoming activities in the course of implementation. These performance reports should provide information at the appropriate level for each audience, the format, mandatory content and frequency of their performance should be consistent with the Contracting Authority's requirements and coordinated as a complete layout with the Contracting Authority and the OE.

QA NA

4. Team for performance of the public procurement. Description of professional competence

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
1.	Project manager	Mathieu Glorie	Industrial Engineer in construction and survey in Tractebel Engineering S.A.	<p><b>More than 15 years of experience as an engineer:</b></p> <ul style="list-style-type: none"> <li>1.2001-2005-Aertssen Geometry &amp; Site Supervisor;</li> <li>2. 2005-2007- Globe - Survey &amp; Project Engineer for Fluxys s.a. and Tractebel Engineering</li> <li>3.2008-2011- Tractebel Engineering - Project Engineer (pipelines)</li> <li>4.2011-2013- Tractebel Engineering - Project Engineer Civil Works</li> <li>5.2011-2014- Tractebel Engineering - Lead Engineer for different pipeline projects</li> <li>6. 2014- up to this moment - Tractebel Engineering - Project Manager and Lead Engineer for different pipeline projects - position held currently.</li> </ul>	<p>1. Belgium, Fluxys-Pipeline RTR II Sint-Truiden-Raeren 40" 80km - Project Engineer/Deputy Project Manager</p> <p>2. Belgium, Fluxys-Pipeline Lommel-Ham 24" 20km - Project Engineer/Deputy Project Manager</p> <p>3. France, GDF - Feasibility study: Taisnières – Cuvilly 36" – 60km - Project Engineer/ Deputy Project Manager</p> <p>4. Jordan – FAJR - SNOBAR (Alkheena): technical advisor for new pipeline connection with related skids (3km - 6") – Project Manager</p> <p>5. Jordan, APC - FEED study – natural gas pipeline project 30km (12" and 10")</p> <p>Construction follow-up of line pipes and gas skids manufacturing – Project Manager</p>	Tractebel Engineerin g S.A. ref. № GEB-OFF/3C/04 33791/000 /00-05.09.201 8r.
2.	Quality System Management Manager	Boyan Ivanov Ivanov	master degree, speciality - Construction of buildings and facilities, qualification - Civil engineer, diplom UACG-	not applicable	<p><b>Specific experience of the same or similar position for linear infrastructure</b></p> <p><b>Project: Linear railways infrastructure:</b> "Update of preliminary design and preparation for construction of Vidin-Medkovets railway section under the project" Design of the construction of Vidin-Sofia railway line: update of the register and preparation of Vidin-Medkovets railway section ", Lot 2: Update of conceptual design project and elaboration of Detailed Development Plan (PPP) and technical design for Vidin-Medkovets railway section.</p>	Copy of diploma; employer reference; public register of permission s of use issued by

<sup>7</sup> The requirements for participation of subcontractors and third parties must be taken into account!

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experie nce
			<p>2007 series, registration number 35814/2007.</p> <p>Employer: Ypsilon Consult</p>		<p>The length of the projected section is 65.04 km. Electrified single rail. a line including 4 new stations. Design speed - 160 km / h.</p> <p><b>Period:</b> 01.2015 - 12.2017</p> <p><b>Services:</b> consulting and designing services</p> <p><b>Position:</b> Deputy Team Leader and Quality Manager</p> <p><b>Project: Linear railways infrastructure:</b> "PREPARATION, COORDINATION AND COMPLIANCE ASSESSMENT WITH THE ESSENTIAL REQUIREMENTS FOR CONSTRUCTIONS OF RAILWAY PROJECTS" BY SEPARATE LOTS: LOT 1: "Coordination of the technical designs elaboration and compliance assessment with the essential requirements for constructions of project "Instrument for preparation of railway projects from the trans-European transport network."</p> <p>The project is a continuation of projects "Technical Assistance for the Modernization of the Trans-European Rail Network in Bulgaria" and "Technical Assistance for Rehabilitation of Railway Sections from Plovdiv-Bourgas and Mezdra-Gorna Oryahovitsa", provided by the European Commission under the ISPA program for the development of the following sites of the railway infrastructure:</p> <ul style="list-style-type: none"> <li>• "Modernization of the railway line Sofia-Dragoman"- 43,280 km.</li> <li>• "Modernization of the railway line Sofia-Pernik-Radomir"- 97,400 km.</li> <li>• "Development of the railway junction Sofia" - 60 km.</li> <li>• "Development of the railway junction Bourgas " - 7 km.</li> </ul> <p>The financing of all activities related to the preparation of the projects included in the "Instrument" was implemented under Priority Axis 1 of OP "Transport" 2007 - 2013.</p> <p><b>Period:</b> 07.2013 - 08.2017</p> <p><b>Services:</b> consulting and designing services</p> <p><b>Position:</b> Deputy Team Leader and Quality Manager</p> <p><b>Project: Linear road infrastructure:</b> Rehabilitation of road BGL1193, BGL1203 / Razlog-Godlevo from km.0 + 000 to km.5 + 195.24. Length of the rehabilitated section of the road - 5195.24m.</p> <p><b>Period:</b> 05.2014 - 11.2015</p> <p><b>Services:</b> consulting services, construction supervision</p>	<p>NCCD <a href="http://www.w.dnask.mtr">http://www.w.dnask.mtr</a> <a href="http://rb.government.bg/UL/Registrar/Permits.asp">rb.government.bg/UL/Registrar/Permits.asp</a></p>



No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
					<p><b>Position:</b> supervisor /manager/ quality control</p> <p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> "Selection of Consultant for the Construction Supervision of WWTP Project and Inlet Collector - Svishtov", financed under Operational Program "Environment" 2007-2013. The project represents the construction of a wastewater treatment plant /WWTP/ for 38000 eq.p., and construction of a linear infrastructure - main inlet collector to WWTP and urgent reconstruction of main branches with a total length of 7,863 m. <u>PoU №CT-05-1531/ 14.09.2015</u></p> <p><b>Period:</b> 07.2013 - 07.2016</p> <p>Services: consulting services – design assessment, contract administration under FIDIC conditions, construction supervision</p> <p><b>Position:</b> Head of Quality Management during implementation of consulting services under FIDIC, Special Development Act /SDA/ and Bulgarian legislation</p> <p><b>Project: Linear road infrastructure:</b> "Repair and reconstruction of the municipal road IV-th class in the village of Brestnitsa - Charkka (BLG 1091), location: on the territory of Brestnitsa village, Gotse Delchev municipality and street regulation of Brestnitsa village, Gotse Delchev municipality, Blagoevgrad District. The total length of the road is 5,377 km. <b>Period:</b> 08.2013 - 08.2014</p> <p>Services: consulting services, construction supervision</p> <p><b>Position:</b> supervisor /manager/ quality control over the construction supervision implementation according SDA</p> <p><b>Specific experience of the same or similar position for linear infrastructure projects:</b></p> <p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> "Technical control in design and construction supervision of contracts with the contractual conditions of FIDIC Yellow and Red Book within project 58111-77-268 Integrated water cycle of the town of Gabrovo, financed by the EU Cohesion Fund and the state budget of the Republic of Bulgaria through OP Environment 2007-2013 under Grant Agreement 58111-C077-268 of</p>	<p>Copy of diploma; employer reference; public register of permission issued by</p>
3.	Health, Safety, Security and Environmental Manager,	Kalin Konov Konov	Master in Mining Mechanization and Electrification, Professional Qualification Mining Engineer,	<b>Not applicable</b>		

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
			<p>Diploma A84 №002403/24.04.1987, issued from the University of Architecture, Construction and Geodesy in Sofia</p> <p>Certificate for Safety and Health Coordinator №085 / 15.06.2018, issued / by DeMeMED - Occupational Medicine Service reg.№450-1 / 16.10.014 of MH</p> <p>Employer: Ypsilon consult</p>		<p>23.02.2010". The contractor's contract covers five construction contracts concluded within the project "Integrated Water Cycle of Gabrovo" as follows:</p> <p>1. Reconstruction of the drinking water treatment plant in Gabrovo according to the requirements of FIDIC's contractual terms for technological equipment and design - construction for electrical and machine-assembling works and for construction and engineering sites designed by the construction contractor (FIDIC, YELLOW BOOK).</p> <p><u>Permission of use /PoU/ No: CT-05-1770/15.10.2015</u></p> <p>2. Reconstruction of WWTP Gabrovo, according to the requirements of the FIDIC contract conditions for technological equipment and design - construction for electrical and machine-assembling works and for construction and engineering sites, designed by the construction contractor (FIDIC, YELLOW BOOK).</p> <p>PoU No: CT-05-896 /23.06.2015</p> <p>3. Rehabilitation of the water supply and rehabilitation /extension of the sewerage network of the town of Gabrovo - stage 1, according to the requirements of the FIDIC contract conditions for the construction and engineering sites designed by the Client (FIDIC, Red Book). For the period June 2012 - July 2014 are constructed 36.2 km of water mains and 13.2 km of sewerage - a total of 49.4 km of water supply and sewerage networks. Completely reasphalted - 43 streets in the neighborhoods of Badzhir, Varovnik, Golo Brdo, Russevtsi, Trendafil, Stefanovci, Zlatari, VI section.</p> <p>PoU No: CT-05-1494/23.10.2014</p> <p>4. Rehabilitation of Gabrovo water supply and sewerage network - Stage 2, according to the requirements of FIDIC's contractual terms for construction and engineering sites designed by the Client (FIDIC, Red Book). For the period October 2012 - July 2015, are constructed 29.2 km of water mains and 7.2 km of sewerage network - a total of 32.2 km of water supply and sewerage network. Completely re-asphalted - 26 streets in the Lakata, Kamaka and Central City districts.</p> <p>PoU No.:CT-05-1768/15.10.2015</p> <p>5. Rehabilitation of water supply and rehabilitation /extension of the sewerage network of Gabrovo - stage 3, according to the requirements of the FIDIC contract conditions for construction and engineering sites designed by the contracting authority (FIDIC, Red Book). For the period August 2012 -</p>	<p>NCCD <a href="http://www.w.dnask.mtrb.government.bg/LU/Registar/Permits.aSPX">http://www.w.dnask.mtrb.government.bg/LU/Registar/Permits.aSPX</a></p>

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experie nce
					<p>June 2015, 24.5 km of water mains and 11.2 km of sewerage, totally 35.7 km of water supply and sewerage networks are built. There are re-asphalted 31 streets in the Radichevets, Yonkovo, Lyubovo, Belentsi and Lisets districts.</p> <p><u>PoU No: CT-05-1769/15.10.2015</u></p> <p><b>Period:</b> 03.2011 - 10.2016</p> <p>Services: consulting services – design assessment, contract administration under FIDIC conditions, construction supervision</p> <p><b>Position:</b> Head of health, safety and environment activities</p> <p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> "Selection of Consultant for the Construction Supervision of WWTP Project and Inlet Collector - Svishtov", financed under Operational Program "Environment" 2007-2013. The project represents the construction of a wastewater treatment plant /WWTP/ for 38000 eq.p., and construction of a linear infrastructure - main inlet collector to WWTP and urgent reconstruction of main branches with a total length of 7,863 m.</p> <p><u>PoU №CT-05-1531/ 14.09.2015</u></p> <p><b>Period:</b> 07.2013 - 07.2016</p> <p>Services: consulting services – design assessment, contract administration under FIDIC conditions, construction supervision</p> <p><b>Position:</b> Head of health, safety and environment activities</p> <p><b>Project: Linear railways infrastructure:</b> Emergency mechanized reconstruction of the railway track in the section Zverino-Mezdra South road №2 from km 71 + 102 /KC №3/ up to km 85 + 320 /KC №6/ with length L = 14 218 m in 2nd railway line, located on the territory of the village of Zverino, village of Lutybrod, village of Reibarovo and village of Kreta, Municipality of Mezdra. The total length of the repaired section is 16.6 km, of which 14.2 km are on road № 2 and 2.4 km along road № 1, for the places where the roads are divided.</p> <p><u>PoU: CT-05-2181/ 09.12.2013</u></p> <p><b>Period:</b> 11.2012 - 12.2013</p> <p>Services: consulting services, construction supervision</p> <p><b>Position:</b> Head of health, safety and environment activities</p>	

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
					<p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> WWTP VLAHI - construction of the building and adjacent linear infrastructure in the area of "Drakolovo", the land of Vlahi village, Kresna Municipality, Blagoevgrad District. The site consists of:</p> <ul style="list-style-type: none"> <li>▪ Building of the Hydroelectric Power Station Vlahi with one hydro-unit</li> <li>▪ Pressurized pipeline to Vlahi MHPP - 1782 m.</li> <li>▪ Water supply to Vlahi and Vlahinska river at elevation 947,50</li> <li>▪ 20 kV power line for Vlahi HPP - 945 m.</li> <li>▪ Power station 20kV and 20kV cables</li> </ul> <p>PoU: №CT-05-150/24.01.2013</p> <p><b>Period:</b> 06.2009 - 01.2013</p> <p><b>Services:</b> consulting services, construction supervision</p> <p><b>Position:</b> Head of health, safety and environment activities during the implementation of construction supervision according to SDA</p> <p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> External water supply pipeline for industrial and fire water supply - first and second stage - (update) to site: "Integrated system for municipal waste management in Sofia Municipality - Non-hazardous Waste landfill, Plant for Mechanical and Biological Treatment of Municipal Waste, Sadinata, the land of Yana, Kremikovtsi region, Sofia Municipality. The construction is a new water supply for the technological and fire water supply of the Sadina site from an existing industrial pipeline of <math>\phi</math>1000 mm - steel pipes. The total length of the pipeline is 3518 m.</p> <p>PoU: CT-05-481/10.05.2011</p> <p><b>Period:</b> 07.2010 - 05.2011</p> <p><b>Services:</b> consulting services, construction supervision</p> <p><b>Position:</b> Head of health, safety and environment activities</p> <p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> Supplementary water supply of the village of Ravno Pole from the drinking water pipeline of Sofia - STAGE I. Length of the track - 4 444 m and passing through Sofia City and Elin Pelin Town. Location: Elin Pelin Municipality, Sofiyska District and SO - Kremikovtsi region.</p> <p>PoU: №CT-05-340/19.03.2010</p>	

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No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
					<p><b>Period:</b> 07.2008 - 03.2010  <b>Services:</b> consulting services, construction supervision  <b>Position:</b> Head of health, safety and environment activities</p> <p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> water supply of a golf complex in Ravno Pole village with mineral hot water - 1532 m and LV cables", located on the territory of Ravno Pole, Elin Pelin Municipality, Gorno Pashishte area. The new water pipeline is 1532 m long and is made of PPC pipes Ø63 mm.  <b>PoU:</b> №CT-05-584/28.04.2015  <b>Period:</b> 10.2005 - 04.2015  <b>Services:</b> consulting services, construction supervision  <b>Position:</b> Head of health, safety and environment activities</p> <p><b>Project: Linear Gas Infrastructure:</b> Transit Gas Pipeline No.2 to Turkey, Greece, Macedonia and Yugoslavia - Looping 1, from the Bulgarian-Romanian border from Kardam to Odrintsi. The built pipeline is 45 km long and DN1200 and is part of the transit gas transmission network, which ensures the transit of Russian natural gas through the territory of the Republic of Bulgaria to third countries.  <b>Period:</b> 1998 - 12.2000  <b>Services:</b> Consultancy, construction supervision  <b>Position:</b> Head of health, safety and environment activities</p> <p><b>Project: Linear Gas Infrastructure:</b> Transit gas pipeline No.2 to Turkey - Looping 2 from Lyulyakovo village, Rupcha to Lozenets compressor station. The pipeline has a length of 45 km and a diameter DN1200 and is part of the transit gas transmission network, which ensures the transit of Russian natural gas through the territory of the Republic of Bulgaria to third countries.  <b>Period:</b> 1998 - 01.2001  <b>Services:</b> Consultancy, construction supervision  <b>Position:</b> Head of health, safety and environment activities</p>	
4.	Head Management Services	Stanislav Ivanov Stoilov	Higher Master degree,	More than 28 years of professional engineering experience such as:	<p><b>Specific experience of the same or similar position for linear infrastructure projects:</b></p>	Copy of diploma; employer

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
			<p>Specialty Industrial and civil engineering - Civil Engineer, Diploma series: AA № 012414, per. No. 24358/10.02.1988, issued from University of Architecture, Construction and Geodesy, Sofia</p> <p>Employer: INTBER GmbH</p>	<ul style="list-style-type: none"> <li>- Designer under the "Constructions" part and author's supervision;</li> <li>- Overall experience as Project Coordinator and Team Leader;</li> <li>- Project management;</li> <li>- Supervision;</li> <li>- Engineer, according to FIDIC and equivalent terms;</li> <li>- Administration of design and construction contracts, including progress control, quality control, budget control; performance monitoring, measurement and certification of payments, change management, claims; progress reports, defects and others;</li> <li>- Experience in managing construction contracts under other European standards as well as contracts funded under European programs and funds;</li> <li>- Preparation of tender documents for the selection of construction contractors; evaluation of offers, participation in negotiations for selection of contractor;</li> <li>- Assessments of the project in accordance with the requirements of the</li> </ul>	<p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> Rehabilitation of the water supply and sewerage network of the town of Bansko with the construction of WWTP, financed under the Operational Program "Environment 2007-2013" Priority Axis 1 "Improvement and development of the drinking and waste water infrastructure in an agglomeration of more than 10 000 PE." The project includes the construction works of the following sub-stages:</p> <ol style="list-style-type: none"> <li>1. Sub-site: Rehabilitation and completion of part of the water supply and sewerage (domestic and rain) networks in the territory of the eastern part of the town of Bansko, as well as the site deviations in this section - FIDIC contract construction conditions - Red Book, first edition 1999. Total length of water supply network - 32 164,30 m.</li> <li>2. Sub-site: Rehabilitation and completion of the water supply and sewerage network in the territory located in the western part of the town of Bansko - design and construction under the contractual conditions of FIDIC - Yellow Book, first edition 1999. Total length of WS&amp;S network - 49 670 m.</li> <li>3. Sub-site: Construction of Wastewater Treatment Plant in Bansko, including Pumping Station and Pusher to WWTP" - design and construction under FIDIC contractual conditions - Yellow Book, first edition 1999. Built for maximum load - 29,980 PE.</li> <li>4. Sub-site: Rehabilitation of existing and completion of inlet sewer collector - Design and Construction under FIDIC Contract Conditions - Yellow Book, first edition 1999. Length - 229 m.</li> <li>5. Sub-site: Construction of an external water supply to WWTP - design and construction under FIDIC contractual conditions - Yellow Book, first edition 1999. Length - 837 m.</li> <li>6. Sub-site: Construction of external power supply to WWTP - design and construction under FIDIC contractual conditions - Yellow Book, first edition 1999</li> <li>7. Sub-site: Glazne river protection correction for flood protection of Bansko WWTP" - design and construction under FIDIC contractual conditions - Yellow Book, first edition 1999</li> <li>8. Sub-site: Construction of a service road to the WWTP, including Glazne River bridge - design and construction under FIDIC contractual conditions - Yellow Book, first edition 1999.</li> </ol>	<p>reference; public register of permissions of use issued by NCCD <a href="http://www.w.dnnsk.mrb.government.bg/UrPermits.aspx">http://www.w.dnnsk.mrb.government.bg/UrPermits.aspx</a></p>

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experie nce
				Contracting Authority and the legislation; Performance of construction supervision; Other consultancy services in construction.	<p>PoU: CT-05-1434/ 21.12.2017  <b>Period:</b> 05.2013 - 12.2017  Services: consulting services – design assessment, contract administration under FIDIC conditions, construction supervision  <b>Position:</b> Project management activities manager  <b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> Waste Water Treatment Plant (WWTP) and auxiliary facilities in Rousse, adjacent collectors and access roads to WWTP, KPS1 and KPS2, in Regulated Site XXXIII-103 - for treatment plant, according to the plan of the Eastern Industrial Zone, Rousse, Rousse District. The project was implemented under the ISPA Program and under the FIDIC contractual terms and conditions "Yellow Book". WWTP is sized for 240 000 PE.  - inlet collector from KPS1 to KPS2 - L = 2351,67 m;  - inlet collector from KPS2 to WWTP - L = 1682,25 m;  - access road to WWTP - L = 686,67 m;  - access road to KPS1 to the WWTP, Rousse - L = 350,92 m.  PoU: NeCT-05-1576/22.12.2011  <b>Period:</b> 10.2007 - 06.2013  Services: consulting services – design assessment, contract administration under FIDIC conditions, construction supervision  <b>Position:</b> Project management activities manager  <b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> Reconstruction of the internal water supply network of the village of Bachevo, Razlog municipality: Chief branch I - high area from V = 500 m3 to OK18; Chief Branch III - High Zone from OK4 to OK18; Chief Branch I - low area V = 300 m3 to OK48; Chief Branch III - low area from OK45 to OK135; Passage of Main Branches I - High and Low Zones under the Bachevska River (Kuda River); Reconstruction of the food system of NV V = 300 m3 and the construction of a new water connection between the existing tanks. The total length of the water mains is 2 985 m.  PoU: NeCT-05-297/15.02.3013  <b>Period:</b> 09.2011 - 02.2013  Services: Consultancy, construction supervision  <b>Position:</b> Head of Construction Supervision Activities Management</p>	

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experie nce
					<p><b>Project: Linear Road Infrastructure:</b> Relocation of existing road III-866 /old III-868/ DEVIN-MIHALKOVO with a total length of 19 955 meters, consisting of the following sub-sites:</p> <ul style="list-style-type: none"> <li>-Section of the road from the bridge to Devin Town to tunnel entrance with a length of 10 468,16 meters</li> <li>-tunnel at Layskovo village with a length of 882,24 meters</li> <li>-Section of the road from tunnel exit to the crossing with the existing road III-866 with a length of 8 604,60 meters</li> </ul> <p>PoU: №CT-05-1628/09.11.2012</p> <p><b>Period:</b> 05.2006 - 11.2012</p> <p><b>Services:</b> Consultancy, construction supervision</p> <p><b>Position:</b> Head of Construction Supervision Activities Management</p> <p><b>Project: Linear Water supply &amp; Sewerage infrastructure:</b> Construction of a sewerage network for the Benkovski district, located in Serdika region - Sofia Municipality, Sofia City with concomitant water supply and a new pumping station for domestic sewage, power supply to the pump station mainly and emergency by Kubratovo substation. The following types of construction works have been completed:</p> <ul style="list-style-type: none"> <li>▪ Rain sewer from Vladayska River along "Lazar Mihailov" Blvd. to "Edinstvo" Street - L = 1009,52 meters</li> <li>▪ Drainage of the existing street lane on "Lazar Mihailov" Blvd. - L = 515,00 meters</li> </ul> <p>Water supply</p> <ul style="list-style-type: none"> <li>▪ Reconstruction of the water pipeline with F315 PEVP on "Lazar Mihailov" Blvd. from "Edinstvo" Str. to "OT 2" - L = 515,00 meters.</li> <li>▪ Street water pipeline F160 PEVP from "Lazar Mihailov" Blvd. to "OT 3" - L = 95,25 meters;</li> <li>▪ Street water pipeline F110 PEVP from "OT 3" to CBO for Pumping Station - L = 95,25 meters;</li> <li>▪ Reconstruction of the pavement and water supply on "Lazar Mihailov" Blvd. - from "Edinstvo" Str. to the PT 2 and the service road from "Lazar Mihailov" Blvd. - PT 25 to the Pumping Station - PT 26</li> <li>▪ Restoration of the pavement on "Lazar Mihailov" Blvd. - from</li> </ul>	

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No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experie nce
					<p>"Edinstvo" street to LV 2 - L = 455,12 m;  Service road from "Lazar Mihaylov" Blvd. - PT 25 to Pumping Station - PT 26 L = 520 m</p> <ul style="list-style-type: none"> <li>▪ Pumping station for waste water</li> <li>▪ Pumping station</li> <li>▪ Service building - Pump Station – built-up area = 25 m<sup>2</sup></li> <li>▪ Power Supply of the Pumping Station fro wastewater- Main and Emergency from Kubratovo Substation L = 1031,30 m.</li> </ul> <p>PoU: CT-05-752/19.07.2011  <b>Period:</b> 07.2009 - 07.2011  Services: Consultancy, construction supervision  <b>Position:</b> Head of Construction Supervision Activities Management</p> <p><b>Project: Linear Gas Infrastructure:</b> Transit Gas Pipeline No.2 to Turkey, Greece, Macedonia and Yugoslavia - Looping 1, from the Bulgarian-Romanian border from Kardam to Odrin. The built pipeline is 45 km long and DN1200 and is part of the transit gas transmission network, which ensures the transit of Russian natural gas through the territory of the Republic of Bulgaria to third countries.  <b>Period:</b> 1998 - 12.2000  Services: Consultancy, construction supervision  <b>Position:</b> Head of Construction Supervision Activities Management</p> <p><b>Project: Linear Gas Infrastructure:</b> Transit gas pipeline No.2 to Turkey - Looping 2 from Lyulyakovo village, Rupcha to Lozenets compressor station. The pipeline has a length of 45 km and a diameter DN1200 and is part of the transit gas transmission network, which ensures the transit of Russian natural gas through the territory of the Republic of Bulgaria to third countries.  <b>Period:</b> 1998 - 01.2001  Services: Consultancy, construction supervision  <b>Position:</b> Head of Construction Supervision Activities Management</p>	
5.	Head Engineering	Roman Rubac	Education: Mechanical Engineer; Current place	<b>More than 15 years of experience as an engineer:</b> 1. 1998-1999 - Mechanical Engineer Assistant -	a) 2017- Jordan – APC – Lead Engineer NUQUL Group Internal Natural Gas Network - FEED for natural gas distribution network from pipeline pressure regulating and metering station till final gas consumer - gas turbines and boilers.;	Tractebel Engineering S.A. ref. No GEB-

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
			of work Senior Piping Engineer in Tractebel Engineering S.A.	CHEMING, division Ustfi nad Labem 2. 1999-2007 - Mechanical/Piping Engineer - CHEMING, division Ustfi nad Labem, 3. 2007-2009- Mechanical and Piping Engineer - Spolchemie a.s. 4. 2009-2011 - Piping Engineer, Piping Designer, 3D PDS Administrator - Tractebel Engineering Belgium 5. 2012-2015--Piping Engineer/ Mechanical/Piping Site Supervisor - Tractebel Engineering Belgium 6. 2016- Senior Piping Engineer - Tractebel Belgium	b)2016 – Jordan – APC – Lead Engineer – Site Supervision APC & JBC Gas Pipeline - APC Internal Works.Gas station installation Natural Gas piping network in APC plant;	OFF/3C/04 33792/000/00-05.09.2018r
6.	Head of Fieldwork supervision (Field Supervision)	Luc Van Krieking	Industrial Engineer in Construction in Tractebel Engineering S.A.	More than 5 years of experience as a Head of Fieldwork Supervision and Construction Manager: 1. 2017 - JORDAN APC/JBC Project - Construction Manager 2. 2015-2016 - APC/JBC Jordan - Construction Manager 3. 2013-2016 - APC/JBC Jordan Construction Manager and Pipeline Engineer. 4. 2011-2013 - Storengy France Construction Manager 5. 2010-2011 - Storengy	Experience as Head of Fieldwork Supervision and Construction Manager in construction projects of steel pipeline with diameter at least 24" of the main pipe and the length at least 50 km: 1. BELGIUM – DISTRIGAS (Fluxys) Reinforcement transport/transit grid, HP Belgium pipeline system in connection with the UK-Continent gas INTERCONNECTOR. 33793/000/ High pressure main trunk lines connecting Zeebrugge to Germany through Belgium (ND 36" and 40" - M.O.P. 80 bar - ± 70 km). Construction manager for the Construction of various major special crossing of Milieu Protected Areas 2. BELGIUM – DISTRIGAS (Fluxys) Reinforcement transport/transit grid, HP Belgium pipeline system in connection with the UK-Continent gas INTERCONNECTOR. High pressure main trunk lines connecting Zeebrugge to Germany through Belgium (ND 36" and 40" - M.O.P. 80 bar - ± 50 km) Construction manager for the main pipeline.	Tractebel Engineering S.A. ref. No GEB-OFF/3C/04 33793/000/00-05.09.2018r

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
		France - Manager	Construction	<p>3. 2017 JORDAN APC/JBC Project Construction Manager Gas-in activities (procedure and activities on site) and performance test (DN 12" - ± 25 km).</p> <p>4. Belgium – DISTRIGAS Gas transmission main pipeline BERNEAU/LUXEMBOURG (ND 16" - MOP 66.7 bar - 100 km) Construction Manager for major special crossings</p> <p>5. BELGIUM - DISTRIGAS Gas transmission main pipeline BRUGGE-QUEVY (ND - 40" - MOP 80 bar - 145 km) Construction Supervisor for special crossings on the southern section BRAKEL-QUEVY (± 60 km)</p>	<p>3. 2017 JORDAN APC/JBC Project Construction Manager Gas-in activities (procedure and activities on site) and performance test (DN 12" - ± 25 km).</p> <p>4. Belgium – DISTRIGAS Gas transmission main pipeline BERNEAU/LUXEMBOURG (ND 16" - MOP 66.7 bar - 100 km) Construction Manager for major special crossings</p> <p>5. BELGIUM - DISTRIGAS Gas transmission main pipeline BRUGGE-QUEVY (ND - 40" - MOP 80 bar - 145 km) Construction Supervisor for special crossings on the southern section BRAKEL-QUEVY (± 60 km)</p>	
6.	Head of QA/QC & Material inspection	Nikolay Patev	Chemical Engineer Bureau Veritas WZW	<p>More than 20 years professional experience in the field of pipelines and related facilities - construction, management, coordination etc.</p> <p>2013 - present Expert – managing the implementation of local HP gas pipeline project (62 km, DN 250, MOP 54 bar) incl. design, procurement of materials and construction;</p> <p>2013 Project Control Engineer, Kazakhstan-Chine Pipeline LLP, Kazakhstan</p> <p>2011-2012 Contracts/Quality Manager "Stations" – Line Valves</p>	<p>Proven Experience as Project Manager, QA/QC Manager and Expert in the construction of steel pipeline with large diameter and the length at least 50 km:</p> <p>1. GAZELLE Gas Pipeline, Lot 2 &amp; 3 (105,6 km, DN 1400, MOP 90 bar), CZECH REPUBLIC Contracts/Quality Manager</p> <p>2. HP Gas Pipeline construction from Alexandroupolis to Komotini (53,6 km, DN 900), GREECE QA/QC Manager</p> <p>3. Cross-country gas-pipeline to Turkey, Loop II, (90 km, DN 1200, MOP 54 bar), BULGARIA Head of Field Supervision</p>	<p>Bureau Veritas WZW Project completion certificate BE.31751 49 / 2018-09-04</p>

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No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
				<p>Stations, Pigging stations, Distribution Nodes, Tie-ins, GAZELLE Gas Pipeline (105,6 km, DN1400, MOP 90 bar);</p> <p>2009 - 2011 Technical Representative (OER) for NABUCCO Gas Pipeline Project - technical review, assessment and analysis of the basic and detailed design, assurance of quality requirements, assistance and support of the local FEED Company, etc.</p> <p>2008 – 2009 Sen. Project Manager, Engineering, Fabrication and Erection of Steel structures (Ash conveyor bridge, Flue gas duct supports, Auxiliary boiler house-1017 t), TPP Maritza East 1, BULGARIA</p> <p>2007 -2008 Sen. Project Manager, Wet Flue Gas Desulphurization Project (Tanks-4 pcs., Absorbers-2 pcs. and Steel structures-1246 t), TPP Maritza East 1, BULGARIA</p> <p>2006 - 2007</p>		

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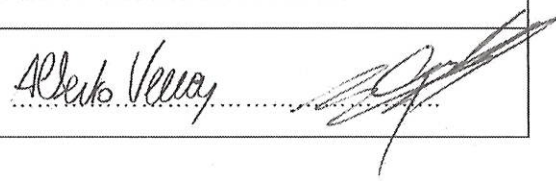
No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experie nce
				<p>QA/QC Manager, HP Gas Pipeline construction from Alexandroupolis to Komotini (53,6 km, DN 900), GREECE</p> <p>2005 – 2006 Project Manager Construction of cooling water pipeline to TPP Maritza East 3, BULGARIA</p> <p>2004 Project/Construction Manager Construction of MG-04 Main Gas pipeline crossing under the river Danube (4,5 km and 1001 m long HDD section, DN 750), SERBIA</p> <p>2002 – 2003 Project Manager Apsheon Peninsula HP Natural Gas pipeline Project (43,2 km, DN 1000), Baku, AZERBAIJAN</p> <p>1999 – 2002 Head of Quality Department - ensure overall quality of the construction activities, Gasstroyontaj AD</p> <p>2000 Head of Field Supervision</p>		

No	Position	Name	Education Current place of work <sup>7</sup>	General experience if requested	Specific experience	Evidence for presence of experience
				<p>(with focusing in the field welding and coating)            Cross-country gas-pipeline to Turkey, Loop II, (90 km, DN 1200, MOP 54 bar), BULGARIA</p> <p>1998 – 1999            Site Manager (Coating and Lowering)            Construction of MG-09 Main Gas pipeline Pojate – Nis, (62 km, DN 500), SERBIA</p>		

*Note: The Participant fills in only the reference to the evidence which proves the presence of experience without applying it as the Participant should have upon disposal all reference documents in the light of the authority of the Committee for selection of Participants, consideration and assessment of the offers under art 104, para. 5 of PPA in each moment to verify and to request evidence for the information set forth in the Offers.*

**5. Indicative linear performance schedule**

The indicative linear performance schedule is attached to this technical methodology as annex 1.

Date	05.09.2018
Name and family name	Alberto Verney and Mert Candarli
Capacity of the representative of the Participant <sup>8</sup>	Participant representatives regarding the Public Procurement Procedure
Signature and stamp <sup>9</sup>	

<sup>8</sup> When the Participant is represented jointly by more than one person the Technical offer shall be signed by each of them indicating the names and capacity of the representatives.

<sup>9</sup> A stamp is affixed if the Participant has one.

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ID	Task Name	Duration	Start	Finish
1	OWNER'S ENGINEER SERVICES	606 days	Thu 1.3.18	Thu 25.6.20
2	Contract signing	0 days	Thu 1.3.18	Thu 1.3.18
3	Team Mobilization	0.25 mons	Fri 2.3.18	Thu 8.3.18
4	Services during the tender phase of the Project (Phase 1 Services)	80 days	Fri 9.3.18	Thu 28.6.18
5	Getting acquainted with the tendering documentations – i.e. the scope of work, material specifications, work and price breakdown, evaluation criteria and evaluation procedure	5 days	Fri 9.3.18	Thu 15.3.18
6	Getting acquainted with the technical documentation under the Project on which the technical part of the tendering documentation is based – FEED for Greece and the Technical Design for Bulgaria	10 days	Fri 16.3.18	Thu 29.3.18
7	Getting acquainted with the tendering documentation and the Project's technical documentation	10 days	Fri 16.3.18	Thu 29.3.18
8	During the bidding period, review and answer questions and requests for clarification of tender documents requested by bidders	4 mons	Fri 9.3.18	Thu 28.6.18
9	Perform evaluation of technical and commercial bids based on the criteria included in the approved evaluation procedure and provide the Contracting Entity with a detailed evaluation report	2 mons	Fri 4.5.18	Thu 28.6.18
10	Support the Contracting Entity to formulate queries for bidders and responding to answers from bidders during bid evaluation phase providing drafts or/and written opinions	4 mons	Fri 9.3.18	Thu 28.6.18
11	Prepare and submit recommendations to the Contracting Entity for the selection of the EPC Contractor and the Line Pipe Supplier	2 mons	Fri 4.5.18	Thu 28.6.18
12	Support of Contracting Entity during negotiations, if any	3 mons	Fri 6.4.18	Thu 28.6.18
13	Provide support to Contracting Entity in case of any appeal against the Contracting Entity decisions	4 mons	Fri 9.3.18	Thu 28.6.18
14	Line Pipe Supplier Contract signing	0 days	Thu 28.6.18	Thu 28.6.18
15	Contract signing for Execution of works (EPC Contractor)	0 days	Thu 28.6.18	Thu 28.6.18
16	Services during the construction phase of the Project	585 days	Fri 30.3.18	Thu 25.6.20
17	Project management Services	585 days	Fri 30.3.18	Thu 25.6.20
18	Project setup Services	60 days	Fri 30.3.18	Thu 21.6.18
19	Organization and conduct of initial risk management workshop	1 mon	Fri 30.3.18	Thu 26.4.18
20	Preparation of Project work breakdown structure (WBS)	0.5 mons	Fri 30.3.18	Thu 12.4.18
21	Develop a comprehensive cost breakdown structure	1 mon	Fri 13.4.18	Thu 10.5.18
22	Preparation of Project execution plan (PEP)	1 mon	Fri 30.3.18	Thu 26.4.18
23	Preparation of Level 3 'Detailed Overview Schedule	0.5 mons	Fri 13.4.18	Thu 26.4.18
24	Preparation of Level 4 'Master Control Schedule'	0.25 mons	Fri 27.4.18	Thu 3.5.18
25	Organization and conduct of workshop with The CE for project objectives, the critical success factors and the key performance indicator	1 mon	Fri 25.5.18	Thu 21.6.18
26	Project execution	520 days	Fri 29.6.18	Thu 25.6.20
27	Health, security, safety and environment Services (H-SSE)	26 mons	Fri 29.6.18	Thu 25.6.20
28	Quality management Services	26 mons	Fri 29.6.18	Thu 25.6.20
29	Commercial management Services	26 mons	Fri 29.6.18	Thu 25.6.20
30	Progress monitoring and reporting	26 mons	Fri 29.6.18	Thu 25.6.20
31	Interface management	26 mons	Fri 29.6.18	Thu 25.6.20
32	Planning and scheduling	26 mons	Fri 29.6.18	Thu 25.6.20
33	Cost estimating, benchmarking and monitoring	26 mons	Fri 29.6.18	Thu 25.6.20
34	Communication management and document control	26 mons	Fri 29.6.18	Thu 25.6.20
35	Project risk management	26 mons	Fri 29.6.18	Thu 25.6.20
36	Change Management	26 mons	Fri 29.6.18	Thu 25.6.20
37	Procurement supervision of the EPC Contractor and Line Pipe Supplier	26 mons	Fri 29.6.18	Thu 25.6.20
38	Supervision of line pipe's delivery process	12 mons	Fri 29.6.18	Thu 30.5.19
39	Contract administration Services	26 mons	Fri 29.6.18	Thu 25.6.20
40	Representation of the Contracting Entity	26 mons	Fri 29.6.18	Thu 25.6.20
41	Engineering support	520 days	Fri 29.6.18	Thu 25.6.20
42	General obligations	520 days	Fri 29.6.18	Thu 25.6.20
43	Overview of the Services related to the engineering and design	4 mons	Fri 29.6.18	Thu 18.10.18

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ID	ID	Task Name	Duration	Start	Finish
44	2.2.1.2	Review, commenting and approval of technical deliverables from the EPC Contractor and Line Pipe Supplier	22 mons	Fri 19.10.18	Thu 25.6.20
45	2.2.1.3	Technical queries and deviations	22 mons	Fri 19.10.18	Thu 25.6.20
46	2.2.1.4	Management of holds	22 mons	Fri 19.10.18	Thu 25.6.20
47	2.2.1.5	Equipment numbering and data books	22 mons	Fri 19.10.18	Thu 25.6.20
48	2.2.1.6	Document control registers and final drawings	26 mons	Fri 29.6.18	Thu 25.6.20
49	2.2.1.7	Changes in the Works	22 mons	Fri 19.10.18	Thu 25.6.20
50	2.2.1.8	Other deliverables from the OE	26 mons	Fri 29.6.18	Thu 25.6.20
51	2.2.1.9	Value engineering	26 mons	Fri 29.6.18	Thu 25.6.20
52	2.2.1.10	Safety reviews	26 mons	Fri 29.6.18	Thu 25.6.20
53	2.2.1.11	Close-out / handover reports by EPC Contractor	22 mons	Fri 19.10.18	Thu 25.6.20
54	2.2.2	Engineering and design supervision during the detailed design phase	26 mons	Fri 29.6.18	Thu 25.6.20
55	2.2.3	Engineering and design supervision during the procurement phase of the EPC Contractor	360 days	Fri 29.6.18	Thu 14.11.19
56	2.2.3.1	Identify and monitor planning for major Equipment	18 mons	Fri 29.6.18	Thu 14.11.19
57	2.2.3.2	Technical assessment of proposals / quotations	18 mons	Fri 29.6.18	Thu 14.11.19
58	2.2.3.3	Suppliers data	18 mons	Fri 29.6.18	Thu 14.11.19
59	2.2.4	Engineering and design supervision during the construction phase	26 mons	Fri 29.6.18	Thu 25.6.20
60	2.3	Fieldwork supervision	520 days	Fri 29.6.18	Thu 25.6.20
61	2.3.1	Health, Safety, Security and Environment during construction (HSSE)	26 mons	Fri 29.6.18	Thu 25.6.20
62	2.3.2	QA/QC during construction	520 days	Fri 29.6.18	Thu 25.6.20
63	2.3.2.1	Audit	26 mons	Fri 29.6.18	Thu 25.6.20
64	2.3.2.2	Testing	12 mons	Fri 29.6.18	Thu 30.5.19
65	2.3.2.3	Punch list	26 mons	Fri 29.6.18	Thu 25.6.20
66	2.3.3	Inspections and Testing by Third Party Inspection (TPI)	520 days	Fri 29.6.18	Thu 25.6.20
67	2.3.3.1	Shop inspection of the Line Pipe Supplier for the Project	12 mons	Fri 29.6.18	Thu 30.5.19
68	2.3.3.2	Field inspections on the Greek territory	26 mons	Fri 29.6.18	Thu 25.6.20
69	2.3.4	Field inspections during construction of the pipe line on the Bulgarian territory	26 mons	Fri 29.6.18	Thu 25.6.20
70	2.3.5	Supervision over construction permitting activities assigned to EPC Contractor	26 mons	Fri 29.6.18	Thu 25.6.20
71	2.4	Land acquisition / right of way activities	26 mons	Fri 29.6.18	Thu 25.6.20
72	2.5	Commissioning Supervision and close-out activities	80 days	Fri 6.3.20	Thu 25.6.20
73	2.5.1.	Supervision of the Pre-commissioning	3 mons	Fri 6.3.20	Fri 29.5.20
74	2.5.2	Supervision of the Commissioning and close-out activities	1 mon	Fri 29.5.20	Thu 25.6.20
75	2.6.	Training	40 days	Fri 1.5.20	Thu 25.6.20
76	2.6.1	Review the training plan of EPC Contractor	1 mon	Fri 1.5.20	Fri 29.5.20
77	2.6.2	Monitor the training	1 mon	Fri 29.5.20	Thu 25.6.20
78	2.6.3	Checking for availability of all developed operation manuals for the equipment and the installations	2 mons	Fri 1.5.20	Thu 25.6.20

- Assumptions:
1. The beginning of the Engineer-Consultant Contract was provisionally accepted on 1.3.2018;
  2. Contracts for the Delivery of Linear Pipes and the Construction Contract shall commence the 2nd Quarter of 2018;
  3. The term of the contract for delivery of linear pipes is 12 months;
  4. Date of commissioning - first half of 2020.

**APPENDIX 9: PRICE OFFER**

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**Appendix No 6 - Price offer**

**PRICE OFFER**

By, Consortium TIBEY seat and registered address Sofia 1618, Bulgaria blvd 118, fl.4 [BULSTAT/UIC/PIN/number of registration and/ or another identifying information in accordance with the law of the country where the Participant is established]<sup>1</sup>: N/A - Participant in an open procedure for award of a public procurement with a subject matter:

**" SELECTION OF OWNER'S ENGINEER FOR THE GREECE-BULGARIA NATURAL GAS INTERCONNECTOR PROJECT (IGB) "**

represented by Alberto Verney, Personal Identity Number VRNLRT72L11D969E, personal ID card No YB1897405, issued on 16.01.2018 by the Ministry of Foreign affairs and international cooperation of Italy <sup>2</sup>, and Mert Candarli Personal Identity Number 86.01.26.87.64, personal ID card No U01279314, issued on 31.01.2011 by Region Municipality of Istanbul, Turkey <sup>3</sup>, in their capacity of Representatives<sup>4</sup> of the Participant

DEAR MR/MRS [representing the Contracting entity],

We hereby present our price offer for participation in the announced procedure for the award of a public procurement contract with the above-mentioned subject:

1. The total amount for the performance of the contract shall consist of lump sums for Phase 1 and lump sum for Phase 2, in figure and word [in Euro], VAT excluded.
2. The price includes all expenses related to the contract subject performance.
3. The payment of the price for the contract execution is effected according to the provisions of the awarded public contract.
4. We propose a total price for implementation of the subject matter of the procurement in the amount of:

**Lump sum for Phase 1:**

In figures: 283.500,00 EUR

In words: Two hundred eighty three thousand five hundred / 00 EUR

<sup>1</sup> Only the correct text shall remain.

<sup>2</sup> If the representative/s of the Participant is/are foreign person/s please indicate individualizing information in accordance with the laws of the country whose citizen is/are the respective person/s.

<sup>3</sup> If the representative/s of the Participant is/are foreign person/s please indicate individualizing information in accordance with the laws of the country whose citizen is/are the respective person/s.

<sup>4</sup> When the Participant is represented jointly by more than one person the stated data shall be filled for each one of them.

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**Lump sum for Phase 2:**

In figures: 5.386.500,00 EUR

In words: Five million three hundred eighty six thousand five hundred / 00 EUR

The total amount for the performance of the contract:

In figures: 5.670.000,00 EUR

In words: Five million six hundred seventy thousand / 00 EUR

(the total price for implementation shall be stated in figures and in words)

the Price above is based on the following break down of price for separate services:

No	Services	Lump sum cost of service
<b>Services during Phase 1</b>		<b>283.500,00 EUR</b>
1	Services during Line pipe Supplier tender procedure	99.225,00 EUR
2	Services during EPC Contractor tender procedure	184.275,00 EUR
<b>Services during the construction phase of the Project – Phase 2</b>		<b>5.386.500,00 EUR</b>
<b>Project management Services</b>		<b>969.570,00 EUR</b>
3	Project setup Services	193.914,00 EUR
4	Project execution	775.656,00 EUR
<b>Engineering support</b>		<b>1.346.625,00 EUR</b>
5	Engineering and design supervision during the detailed design phase	673.312,50 EUR
6	Engineering and design supervision during the procurement phase of the EPC Contractor	403.987,50 EUR
7	Engineering and design supervision during the construction phase	269.325,00 EUR
<b>Fieldwork supervision</b>		<b>3.070.305,00 EUR</b>
8	HSSE during construction	276.327,45 EUR
9	QA/QC during construction	276.327,45 EUR
10	Inspections and Testing by Third Party Inspection (TPI) for the Greek section	184.218,30 EUR
11	Shop inspection of the Line Pipe Supplier for the Project	184.218,30 EUR

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12	Field inspections during construction of the pipe line for the whole Project	1.842.183,00 EUR
13	Supervision over construction permitting activities assigned to EPC Contractor	92.109,15 EUR
14	Land acquisition / right of way activities, liaison with third parties related to the Project.	92.109,15 EUR
15	Commissioning Supervision and close-out activities	92.109,15 EUR
16	Services during Training	30.703,05 EUR

**NOTE:** the calculation in the table shall be equal to the total amount of the lump sum. In case of discrepancies and/or technical mistakes, the amount of the total Lump sum and the Lump sums for Phase 1 and Phase 2 shall prevail.

**II. Hourly rates price:**

**Note:** The positions in the team shall be grouped in accordance with the Price Offer Evaluation Methodology – please see Appendix 4, upon the estimation of the Participant and their position in the team’s hierarchy.

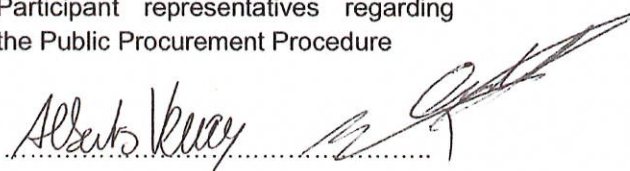
<i>Position in the team</i>	<i>Hourly rate (EUR, VAT exclusive)</i>
1. Project manager	125,00 EUR/h
2. Senior management staff	145,00 EUR/h
3. Experts staff	95,00 EUR/h
4. Supporting staff	80,00 EUR/h

Date 05.09.2018

Name and family name Alberto Verney and Mert Candarli

Capacity of the representative of the Participant<sup>5</sup> Participant representatives regarding the Public Procurement Procedure

Signature and stamp<sup>6</sup>



<sup>5</sup> When the Participant is represented jointly by more than one person the Technical offer shall be signed by each of them indicating the names and capacity of the representatives.

<sup>6</sup> A stamp is affixed if the Participant has one.

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*Handwritten initials*

# TRACTEBEL



## CORPORATE HEAD OFFICE

Boulevard Simón Bolívar 34-36  
1000 Brussels - BELGIUM  
T +32 2 773 99 11 - F +32 2 773 99 00  
engineering@tractebel.engie.com  
tractebel-engie.com

ICGB  
Attn :  
Mr. Dimitar Spassov  
"Veslets" Street No.13, 2<sup>nd</sup> Floor  
Sofia 1000  
BULGARIA

**RESTRICTED**



**YOUR REF.:**

**OUR REF.:** GEB-OFF/3C/0445211/000/00

**TS:** SF18926

**Writer:** Mert Candarli

Direct tel. +32 479 13 15 91

e-mail: [mert.candarli@tractebel.engie.com](mailto:mert.candarli@tractebel.engie.com)

Brussels, 26/02/2019

**Subject: Re: participation in an open procedure for the award of a public procurement contract with subject matter: "SELECTION OF OWNER'S ENGINEER FOR THE GREECE-BULGARIA NATURAL GAS INTERCONNECTOR PROJECT", opened with Decision №OR-05 of 08.11.2017. , under No 05381-2017-0002 in the PPR**

Dear Mr. Spassov,

With regard to your letter received on 21.02.2019 and on the grounds of art. 72, paragraph 1 of the Public Procurement Law, we submit to you, within the specified term, a detailed written justification for the formation of the proposed price by CONSORTIUM "TIBEY" , for Phase 2 services.

CONSORTIUM "TIBEY" between "TRACTEBEL ENGINEERING SA", Belgium - the leading partner of the consortium), TRACTEBEL ENGINEERING S.r.l., Italy - companies with reputation of market leaders in the field of consulting engineering worldwide, as well as the international consulting company INTBER GMBH (INT) and Bulgarian BULGARIA ENGINEERING EAD (BE) and YPSILON Ltd. (YPS) has a considerable amount of knowledge and experience in the provision of consultancy services related to the construction and reconstruction of large-scale infrastructure projects in Europe and worldwide, as well as in Bulgaria.

As the leading partner of Consortium TIBEY, Tractebel Engineering ranks among the world's leading multi-disciplinary engineering and consulting firms in the GAS field. We engineer solutions for gas pipelines, LNG Terminals, storage and regasification units, from small to very large scale facilities.

With over 60,000 km of gas pipelines, crossing many different countries and terrains, Tractebel's technical expertise in gas transmission & distribution is widely recognized. Tractebel Engineering, with more than 40 years of uninterrupted experience in the GAS sector, have all the required expertise and the know-how to create innovative solutions that will address the needs of ICGB.

Through our network of regional companies and partners, we assure best practices deployment. As a part of an international operator, we have experience of working with many different cultures. Our local knowledge and international networks give us the edge in the world market.

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The IGB project is of utmost importance and in order to tackle the challenges of both phases of the project, Tractebel Engineering have setup an effective Consortium team with the right credentials. Under the leadership of Tractebel Engineering S.A. (Belgium), the Consortium TIBEY includes the local affiliate of Tractebel Engineering in Italy as well as the three locally renowned Bulgarian companies, namely, Bulgaria Engineering EAD, YPSILON LTD. and one international company, developing activity in Bulgaria – INTBER GMBH.

- Bulgaria Engineering EAD specializes in consulting and engineering of designs for the realization of infrastructural, energy and energy efficiency projects;
- YPSILON LTD. provides consulting services for project management and design with a focus on construction and engineering projects. YPS has extensive experience in consulting services for major infrastructure projects;
- INTBER GMBH was founded in Austria, and from 2017 onwards opens a representation in Sofia-Bulgaria, with the focus on markets in Central and Eastern Europe. It is specialized in consulting of clients and multidisciplinary specialized projects in the construction and engineering industry;
- The Consortium TIBEY have also employed the prominent Greek subcontractor (Moody Hellas S.A.) who have the necessary competence and the relevant experience for the Third-Party Inspection (TPI) activities. Moody Hellas S.A. is an accredited inspection and certification body providing services in the following fields of industrial inspection including inspection of mechanical equipment, lifting equipment, pressure equipment, welders, welds, pipe mills as well as providing system certification management, training and staffing services.

Based on Tractebel's and all of the Consortium partners' proven track records, as well as on the in-depth examination of all documents that form part of this procedure, we have gained a clear understanding of the subject of this tender and presented it in the Technical Proposal for the Services and the Proposal of Price, including price for Phase 2, part of Participant's offer.

**1. Clarification of the economic specificities of the services to be provided, the technical solutions chosen and originality of the solution proposed by the participant**

In order to better explain our price offer, we would like to give some clarification on the **economic features of the services provided and the chosen technical solutions**, namely our method of work, the chosen **original solutions** and the reasons for our efficiency based on which we calculated the price for the execution of the public procurement and the implementation of Phase 2 respectively.

**1.1 Economic features of the provided services**

The economic features of the services provided under this project are rooted in the Project implementation approach chosen by our Consortium, namely the use of experienced personnel in such projects and, moreover, significant number of local resources that will be coordinated by the leading partner TRACTEBEL Belgium, one of the leaders in the implementation of consulting services. Thanks to the substantial experience of TRACTEBEL, enriched by local knowledge and professionalism in the field of consulting services in projects with European and international funding of the Bulgarian partners, the processes will be optimized and the efficiency of the consortium hence the competitiveness of the service price will increase.

- Based on our understanding of the Project and the Project Implementation Plan (PIP), we have built the presented Technical Proposal (part of the Participant's offer) on the basis of proper and cost-effective allocation of resources;

- The allocation of personnel to form the most efficient project execution team was achieved through the advantage of knowledge of the market & conditions where maximizing the local content for cost competitiveness (i.e., involvement of local supervisors for the construction phase thanks to the Bulgarian partners) was of highest priority. This was realized in order to streamline the pricing of our offer while capitalizing on the international experience for projects of such magnitude.

As the EPC Contractor's work program is not yet known, the mobilization plan has been based on our understanding of the scope of activities as well as on our experience with similar projects. Given the multinational approach of the Consortium, we were able to setup a favorable combination of international & local engineers (~30% international & ~70% local) for the project execution. Internationally experienced Tractebel experts have been proposed for the positions of Project Manager, Construction Manager (Head of Fieldwork Supervision) and the Engineering Manager (Head Engineering Design) in addition to the skilled back office support engineers who will be supporting the site team from Italy and Belgium all throughout the project duration. All the discipline engineers as well as site inspectors (incl. the support functions/Non-Key Experts) to be mobilized on site have been chosen from experienced local profiles. **The mobilization of the project execution team considers both full time as well as part time involvement of personnel, as for example an expert mobilized for the whole project time may work on part time basis, as per good construction management practices.**

This approach, which we have adopted, greatly contributes to the economic efficiency of the services by optimizing the cost of remuneration, transportation and accommodation of staff.

- In addition to the multinational & effective team setup, our extraordinary efforts to fine tune to reach the optimum understanding of the ICGB's requirements have been the baseline to build up our commercial price for the Lumpsum offer to cover the entire scope of work.

For the details of the mobilization duration per team member (also included in the relevant "Logistics" sections namely, §2.1.3., §2.2.3., §2.3.3., §2.4.3., §2.5.3. of the "Annex No. 5 Technical Offer" of the Consortium TIBEY offer submitted on 05/09/2018), please kindly refer to the attached Mobilization Chart for the manpower requirement (Annex №1) of the overall project execution team including the key experts as well as the support functions (on a full time and part time basis) for the entire duration of the project.

## 1.2 Selected technical solutions

The selected technical solution for the execution of this project are detailed in the Technical Proposal to the offer. Below are some highlights and clarifications:

- The management team will have **the available documentation** (project manuals and procedures, design review procedures...etc) developed over the several years of experience that have proved their effectiveness in practice.
- The Consortium TIBEY shall prepare and submit as a starting document a Project Implementation Plan (PIP) based on our technical solutions. The responsibilities of the project execution team representing the chosen technical solutions has been well distributed over the complete scope of services covering the entire project implementation stage activities of Phase 2, namely, Project Management Services (§2.1.), Engineering Support/Assistance (§2.2.), Fieldwork/Construction Supervision (§2.3.), Supervision of Commissioning, Completion Activities, Training (§2.4.), Shop inspection for the line pipes and field inspection on site for the Greek section of ICGB (§2.5.).

This distribution of responsibilities coupled with the elaborated technical offer have successfully resulted in receiving the highest technical score taking into consideration the method of performing the services, personnel competence and organization.

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### 1.3 Original approaches

- An **original** approach that we have chosen in the preparation of the implementation of the Project in the public procurement phase is to provide for a quality management system based on Quality Management Systems (QMS). The QMS is described in detail in the Technical Proposal of the Participant. The following basic principles are laid down in the QMS:
  - The OE management is responsible for defining the rules and methods for improvement, and all members of the team- for their observance;
  - The OE shall seek to organize its activities in the direction of continuous improvement of the results. All improvements are aimed at achieving, preserving and enhancing the satisfaction of the Contracting Authority;
  - Mechanism for implementing the improvement process is to collect and analyze the data, aiming at revealing potential for improvement;
  - The efficacy of the methods and the improvement achieved is evidenced by the evaluation of the audits' results, evaluations of the QMS in the management review, recording and analysis of the discrepancies and control over the implementation of the corrective actions. Based on all the information gathered, new goals and opportunities for further improvement of QMS are defined;
  - An important element for constant improvement of processes and elimination of causes of inconsistencies, and identification and implementation of preventive actions to prevent repetition;
  - The OE will implement its Quality Management System at all stages of the project, aiming at covering the relevant quality conditions in all project activities. The specific procedures supported by standard documents and forms adapted to this project will ensure:
    - The quality of project's tasks and activities;
    - Effective communication with all stakeholders;
    - Efficient documentation of all correspondence, reports and other documents;
    - Clear and efficient management of finances;
    - Effective quality management;
    - Effective administration of the obligations under the Contract;
    - Optimization of resources;
    - Agreed minutes of meetings and timely submission of documentation.

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Using the above-described practices and approaches that we have chosen to apply in the run-up to the project, are in our opinion **original solutions** guaranteeing **competitive advantage** that will lead to improved processes, optimization of working time and resources, prevention of errors, and hence economic efficiency in implementation of the project.

- Another **original proposal**, part of the service delivery approach, is our intention to use a **cloud management information system** that is geographically diversified and with high security of data transmission and storage to serve our projects with the shortest possible deadlines for information transfer and increased capacity for team work and quality control. The web-based document management system (DMS), which will allow control over the movement and archiving of documents related to the performance of the contract. This system is detailed in our Technical Proposal under the offer.

A very important milestone in the implementation of the project is the distribution of responsibilities and constant control over the proper use of the system by all users in the Consultant's team in order to avoid loss of information and / or duplication of different versions of documents and drawings. In this sense, the project plan, as part of the web-based system, will develop rules for working with the system, levels of access control, and how to store documents. Assuming that with this original engineering practice, the Project will be implemented within the timeframe foreseen in the indicative program and within the planned budget, we consider the DMS as one of the prerequisites for the economic efficiency of service implementation.

## 2. Pricing for Phase 2 Services

In view of our long-standing experience in consulting services and the work approaches we selected, and first of all according to the requirements of the Contracting Authority in the tender documentation, we have offered a **fixed price**, in the amount of EUR 5.670.000,00 excluding VAT including the Phase 2 price. As defined in the Project Management Body of Knowledge (PMBOK) Project Guide, the Fixed Price or Hard Value contract includes a fixed total price for a well-defined service. Typical for this type of contract is that the price is formed on the basis of a sum of values for a particular group of works in the scope.

We would like to clarify that the given hourly rates for additional services will apply in case of variations under the terms and the conditions of the contract, or as it is written in **p.11 Hourly rates, applicable to the Variations from Appendix 3 to the Draft Contract**, part of the tender documentation, these are " The hourly rates to be used to determine the value of a Variation under Clause 5.2. (Agreement of Variation Value and Impact) and to determine Exceptional Costs for the extra time spent by the Consultant's personnel in the performance of the Services pursuant to Clause 7.1.2 [Payment to the Consultant]....".

We made the relevant calculations using our methodology, which is used to determine bid prices based on the type of project and the amount of work required to fulfill the scope of services under the specific contract. In this regard, the price of Phase 2 of the present offer is **EUR 5.386.500,00 excluding VAT**.

We are confident that the clarifications given in the present justification of Consortium TIBEY will fully satisfy the requirements of the Commission for the Evaluation of Proposals for Public Procurement with the subject: "SELECTION OF OWNER'S ENGINEER FOR THE GREECE-BULGARIA NATURAL GAS INTERCONNECTOR PROJECT".

Yours faithfully,

**Alberto Verney**  
(Authentication)

Digitally signed by Alberto Verney  
(Authentication)  
DN: cn=Alberto Verney  
(Authentication), c=IT  
Date: 2019.02.26 16:29:03 +0100'

**Alberto Verney**  
Head of Sales  
Energy Generation

**Mert Çandarlı**  
(Authentication)

Digitally signed by Mert Çandarlı  
(Authentication)  
DN: cn=Mert Çandarlı  
(Authentication), c=TR  
Date: 2019.02.26 16:26:47 +0100'

**Mert Candarli**  
Sales Manager  
Energy Generation

ALMA



# TRACTEBEL



## CORPORATE HEAD OFFICE

Boulevard Simón Bolívar 34-36  
1000 Brussels - BELGIUM  
T +32 2 773 99 11 - F +32 2 773 99 00  
engineering@tractebel.engie.com  
tractebel-engie.com

ICGB  
Attn :  
Mr. Dimitar Spassov  
"Veslets" Street No.13, 2<sup>nd</sup> Floor  
Sofia 1000  
BULGARIA

**RESTRICTED**



YOUR REF.:  
OUR REF.: GEB-OFF/3C/0445798/000/00  
TS: SF18926

Writer: **Mert Candarli**  
Direct tel. +32 479 13 15 91  
e-mail: [mert.candarli@tractebel.engie.com](mailto:mert.candarli@tractebel.engie.com)

Brussels, 07/03/2019

**Subject: Re: Open procedure for award of a public procurement with a scope: "SELECTION OF an OWNER'S ENGINEER FOR THE GREECE-BULGARIA NATURAL GAS INTERCONNECTOR PROJECT (IGB)"**

Dear Mr. Spassov,

With regard to your letter received on 06.03.2019, we hereby **confirm** that, **CONSORTIUM TIBEY** will implement the full scope of Phase 2 services as described in the ICGB Technical Specification and in our Technical Proposal within the proposed fixed lump-sum amount of 5,386,500.00 EUR (five million three hundred and eighty six thousand five hundred) by the proposed organizational structure and positions of key and non-key experts, regardless of the time and duration proposed to mobilize the relevant expert/s and regardless of whether the experts are engaged in full/part time.

We hope that **this confirmation** will fully satisfy the requirements of the Commission for the Evaluation of Proposals for Public Procurement with the subject: "SELECTION OF OWNER'S ENGINEER FOR THE GREECE-BULGARIA NATURAL GAS INTERCONNECTOR PROJECT".

Yours faithfully,

**Mert Candarli**  
(Authentication)  
Digitally signed by Mert Candarli  
(Authentication)  
DN: cn=Mert Candarli  
(Authentication), c=TR  
Date: 2019.03.07 15:35:51 +0100

**Mert Candarli**  
Sales Manager  
Energy Generation

**Alberto Verney**  
(Authentication)  
Digitally signed by Alberto Verney  
(Authentication)  
DN: cn=Alberto Verney  
(Authentication), c=IT  
Date: 2019.03.07 15:54:38 +0100

**Alberto Verney**  
Head of Sales  
Energy Generation

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