ICGB AD
13, Veslets Str., 1000 Sofia, Bulgaria
tel.: +359 (2) 9263 862; www.icgb.eu

Natural Gas
Interconnector
Greece - Bulgaria

Scope of Services

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

Contents:

1. Public procurement title 5
2. General information on the Project and on the Contracting Entity 8
2.1 Technical implementation and progress 8
2.2 Economic implementation and progress 9
3. General description of the scope of the services subject to procurement 10
3.1. General principles. Limitations of the scope. Coordination with other participants in the construction process. 10
3.2. Phases of the performance of the Services 12
3.3. Language of the Services 13
4. Time frame of the Agreement's execution. Reporting of Services/deliverables 14
5. Description of Project's pipeline system 15
6. Services during the tender phase of the Project (Phase 1 Services) 16
7. Project management Services 18
7.1 Project setup Services 18
7.2. Project execution 20
7.2.1. Health, security, safety and environment Services (HSSE) 20
7.2.2. Quality management Services 21
7.2.3. Commercial management Services 21
7.2.4. Progress monitoring and reporting 23
7.2.5. Interface management 24
7.2.6. Planning and scheduling 24
7.2.7. Cost estimating, benchmarking and monitoring 24
7.2.8. Communication management and document control 24
7.2.9. Project risk management 25
7.2.10. Change Management 25
7.2.11. Procurement supervision of the EPC Contractor and Line Pipe Supplier 25
7.2.12. Supervision of line pipe's delivery process 28
7.2.13. Contract administration Services 29
7.2.14. Representation of the Contracting Entity 30
8 Engineering support 30
8.1 General 30
8.1.1 Overview of the Services related to the engineering support 30

8.1.2 Standards and codes 32
8.1.3 Review, commenting and approval of technical deliverables from the EPC Contractor and Line Pipe Supplier 32
8.1.4 Technical queries and deviations 32
8.1.5 Management of holds 33
8.1.6 Equipment numbering and data books 33
8.1.7 Document control registers and final drawings 33
8.1.8 Changes in the Works 33
8.1.9 Other deliverables from the OE 34
8.1.10 Value engineering 34
8.1.11 Safety reviews 34
8.1.12 Close-out / handover reports by EPC Contractor 34
8.2 Engineering and design supervision during the detailed design phase 34
8.3 Engineering and design supervision during the procurement phase of the EPC Contractor 35
8.3.1 General 35
8.3.2 Identify and monitor planning for major Equipment 36
8.3.3 Technical assessment of proposals / quotations 36
8.3.4 Suppliers data 36
8.4 Engineering and design supervision during the construction phase 36
9. Fieldwork supervision 37
9.1 The OE's general responsibilities during construction 37
9.2 HSSE during construction 40
9.3 QA/QC during construction 41
9.3.1 Audit 42
9.3.2 Testing 42
9.3.3 Punch list 43
9.4 Inspections and Testing by Third Party Inspection (TPI) 44
9.4.1 General 44
9.4.2 TPI's coordination and reporting 45
9.4.3 Shop inspection of the Line Pipe Supplier for the Project 46
9.4.4 Field inspections on the Greek territory 48
9.5 Field inspections during construction of the pipe line on the Bulgarian territory 49
9.6 Supervision over construction permitting activities assigned to EPC Contractor 50

9.7 Liaison with the Construction Supervision entity in Bulgaria acc. Spatial Development Act (SDA) in Bulgaria 51

9.8 Liaison with the Designer's Supervision entity in Bulgaria acc. Spatial Development Act (SDA) in Bulgaria 51

10. Land acquisition / right of way activities 51

11. Commissioning Supervision and close-out activities 52

12. Training 55

13. EPC Contractor's scope of work 56

14. Line Pipe Supplier's scope of delivery 58

15. Construction Supervision according SDA in Bulgaria. Scope of Services 58

16. Appendices and references to documents related to the Scope of services 59

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[1]	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 (*Definitions*) 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[2]	The entity performing the role and having responsibilities of the owner's engineer (OE), as such is defined as "Consultant" in Clause 1.1 (*Definitions*) 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

[1] 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.
[2] 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.

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 (*Definitions*) 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 5th 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 10th 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;

- 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 Contacting 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.

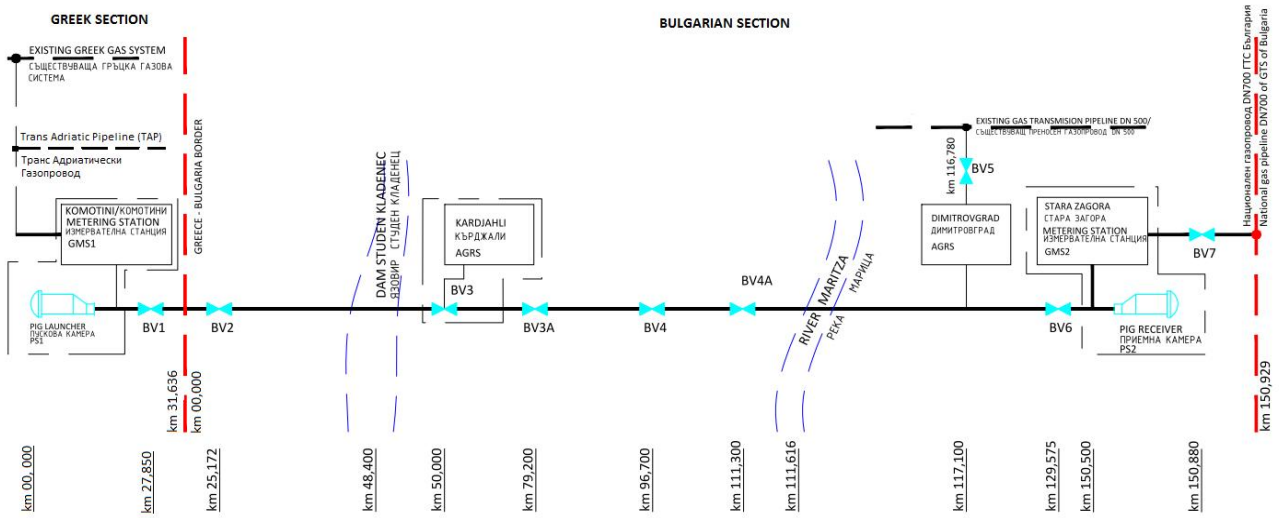

Fig. 5.1 IGB pipeline

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

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;

- 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 31st 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.

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

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:

- 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;

- 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 Contacting 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.

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;

- 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

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 proper 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 Contacting 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 Contacting 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

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).

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.

- 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.