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REPUBLIC OF BULGARIA
MINISTRY OF ENVIRONMENT AND WATERS
MINISTER

Sofia 1000, 22 Maria-Luisa Blvd

Subject: Notification of an investment proposal "South Stream" Gas Transmission Pipeline on the territory of Republic of Serbia

Dear Mrs Karadjova,

Pursuant to Article 3 of the Convention on Environmental Impact Assessment (EIA) in a transboundary context, you can find enclosed a completed standard notification form in English (approved with resolution I/4 from the First meeting of the parties to the Convention) of an investment proposal "South Stream" Gas Transmission Pipeline on the territory of Republic of Serbia". Please, keep in mind that the deadline for sending a reply for the notification is four (4) weeks, starting from the date it has been received.

Sincerely Yours,

MINISTER

Professor Zorana Mihajlović, Ph.D

CC: Ministry of Foreign Affairs of Republic of Serbia, Belgrade

**Request for defining scope and content of the Study on Environmental Impact Assessment
for the South Stream Project**

1. General Contractor's Data

General Contractor: SOUTH STREAM DOO Novi Sad

Registry Code: 20785683

Tax Ident. Number: 107350223

Legal Form: Limited Liability Company

Registered Seat: 12 Narodnog-fronta-Str., Novi Sad

Activity Code: 4950

Study on EIA prepared by: Public Enterprise "Srbijagas" Novi Sad

Registry Code: 20084600

Tax Ident. Number: 104056656

Legal Form: Public Enterprise

Registered Seat: 12 Narodnog-fronta-Str., Novi Sad

Activity Code: 4950 – pipeline transmission

2. Project and Location Description

a) Location Description

A high-pressure gas pipeline South Stream is a gas transmission system (in Russian abbreviated as "GTS") for Russian gas export supplies to the countries of South and Central Europe amounting up to 63,0 bcm/year (including fuel gas).

It contains the following pipeline sections: submarine gas pipeline sections through the Black Sea aquatory and on-shore sections across the territories of South and Central European countries.

The branch running through the territory of the Republic of Serbia includes the following sub-sections:

- High-pressure gas pipeline sections
- Gas pipeline sections for gas transit to the Republic of Srpska
- Gas pipeline sections for gas transit to the Republic of Croatia (depending on the approved alternative solution)

Length of the designed high-pressure gas pipeline branch on the territory of Serbia is 451,5 km from the starting point at the Bulgarian border to the ending point at the Hungarian border. The route runs in the vicinity of the following major villages and cities: Zaječar, Boljevac, Paraćin, Čuprija, Jagodina (Svetozarevo), Svilajnac, B. Plana, Smederevo, Pančevo, Temerin, Vrbas, Kula and Sombor. The last village at the Hungarian border is Bački Breg.

Design boundaries on the territory of the Republic of Serbia are defined by the points the high-pressure gas pipeline crosses the state borders of the Republic of Serbia and Bulgaria, Hungary, Croatia and Bosnia & Herzegovina (branch to the Republic of Srpska). Gas supply to Bosnia & Herzegovina are expected to be carried out also through the existing gas transport system owned by PE Srbijagas.

The gas pipeline enters the territory of the Republic of Serbia in the sector of border crossing „Vrška Čuka“, near the city of Zaječar. The route runs around the border crossing Vrška Čuka from the north and goes down into the valley of the river Beli Timok, crosses the river and runs along the slopes of the mountains Stara Planina, Tupižnica and Rtanj up to the Boljevac-village. The route runs from Boljevac parallel to the highway Zaječar – Paraćin, with three crossing points, and across the mountain part in the area of a mountain pass Čestobrodice it reaches the city of Paraćin. It is a mountain relief crosscutted with river valleys, made of limestone and volcanic sediments. Watershed elevations reach 1560 m. The route uses mainly river valleys and lowlands between mountains. Route elevations range between 200 m (in valleys) and 700 m, in average.

Between the cities of Čuprija and Paraćin the route goes down from the mountains to the valley of the river Morava, turns north and enters the corridor of the existing gas pipeline and the major highway, running along the Morava river valley. Near the city of Smederevo the gas pipeline crosses the Danube river in the vicinity of the place where the Morava flows into the Danube. The route part between Paraćin and the Danube crossing is characterised by flat relief forms of alluvial soil, created by the deposition of bedrock sediments. The local lower parts contain extensive swamps forming biogenic strata. The main route direction of this section is north.

The route passes Belgrade in the east, near the city of Pančevo, and goes on toward the city of Novi Sad. It is envisaged that the route pass the area of Novi Sad twenty kilometers eastward. The route of the designed gas pipeline turns north-west in the vicinity of the village Gospodinci, passing by the cities of Temerin, Kula, Vrbas, and heading north around Sombor. The route between Gospodinci and Sombor should run within the corridor of the existing gas pipeline.

In terms of geomorphology the route part to Hungarian border runs through the Central Danube Plain, on its southwest outskirts being the Pannonian Basin, with the absolute elevations ranging between 70 and 90 m. The relief is flat, with a complex and extended hydrographic system of tributaries of the Danube.

Main natural and artificial (constructed) barriers on the route are large and mid-size watercourse crossings (rivers Danube, Tamiš, Tisa; Danube-Tisa-Danube Canal, the Grand Canal) as well as 1. and 2. category motorways and railways.

Compressor stations along the route of the high-pressure gas pipeline are planned to be located as follows: the compressor station 1 (CS 1) at 147 km and the compressor station 2 (CS 2) at 342,5 km of the route.

The south gas pipeline branch (to Serbia) is foreseen to be constructed at 83,6 km within the area of Paracin and the north branch (to Serbia and Bosnia&Herzegovina) at 310,5 in the area of the hub Gospodjinci.

Gas pipeline branch to the Republic of Srpska

The starting point of the branch to the Republic of Srpska is situated at 261,5 km of the high-pressure gas pipeline route, near the village of Centa, and its length is about 105 km. The route direction is southwest.

The gas transmission to the Republic of Srpska envisages three major river crossings over the rivers Danube, Sava and Drina. The Drina river in the area of Novi Sad represents the ending point of the branch on the territory of Serbia. There are also large road and railway crossing planned. The starting point of the route is located within the swampy lowland in the area of Centa. The whole route runs through river lowlands. There are over 100 m elevations only on the rather steep right bank of the Danube.

Gas pipeline branch to the Republic of Croatia

The starting point of the branch is situated at 344,8 km of the high-pressure gas pipeline, at 2,3 km from CS 2 in the gas flow direction. The branch length is 52,7 km. The route runs southwest in relation to the base route across a flat terrain. The elevations do not exceed 85 m. The ending point is the Danube (state border with the Republic of Croatia) in the area of the village Backo Novo Selo. The main barriers on the route are regulated watercourse crossings – canals Mali and Backi Petrovac.

2. Description of main features of the production procedure (the nature and the extent of material usage)

The Project envisages gradual increase in natural gas quantities to be transported through the territory of Serbia from 20,9 bcm/year (2017) to 40,5 bcm/year (2025).

Table 1 shows a preliminary gas composition to be transported.

Table 1 - Preliminary gas composition to be transported

Description	Indicator
Gas composition (volume fraction %)	
Methane (CH ₄)	97,5278
Ethane (C ₂ H ₆)	0,8797
Propane (C ₃ H ₈)	0,1397
Isobutane (C ₄ H ₁₀)	0,0149
N-butane (C ₄ H ₁₀)	0,0248
Isopentane (C ₅ H ₁₂)	0,018
N-pentane (C ₅ H ₁₂)	0,0203
Hexane (C ₆ H ₁₄)	0,0222
Heptane (C ₇ H ₁₆)	0,0126
Nitrogen (N ₂)	0,9303
Carbon dioxide (CO ₂)	0,41

Within the designed part of a lineal gas pipeline the following structures and communications should be constructed:

- Section of the gas pipeline South Stream with ball valve hubs
- Gas Measuring points at GIS
- Receiving Traps connected to the connection point of the compressor station (CS)
- Remote Control Structures (i.a. remote operation checkpoints)
- Electrochemical gas pipeline protection
- Optic cable along the designed gas pipeline
- Complete transformer sub-stations (KTP)

In addition, submarine crossings are foreseen to be constructed at the locations where the route of the designed gas pipeline crosses watercourses (rivers).

1. Construction of a line part of the gas pipeline

A preparatory stage of the construction includes the following works: preparatory work outside the route, preparatory work on the gas pipeline route, basic line work, work regarding installation of electrochemical protection.

Works to be made under basic construction stage shall commence upon completion of preliminary work. Construction of the high-pressure gas pipeline is conducted using various types of mechanization, machinery and devices for the following: earth works, loading, unloading, storage and transport of large-diameter pipes, pipeline laying and insulation works.

Prior to the basic earth works, the top soil with vegetation is cleared away from the construction zone and stockpiled separately so it can be re-used for site recultivation and landscaping. The excess soil will be delivered to a soil user.

The line concerning works include the following:

- Pipe delivery and their line up along the route;
- Welding and installing;
- Trenching and excavation;
- Foundation;
- Pipe laying and installing fittings;
- Installing electrochemical pipeline protection and other;
- Pipe insulation and insulation inspection;
- Backfilling the trenches.

2. Construction of gas pipeline river crossings may be conducted through three principally different methods – by digging trenches (primarily for small rivers and streams with water mirror width up to 30 m), horizontal directional drilling (mid-size and major watercourses) and microtunneling (for mid-size and major watercourses where soil conditions make it impossible to use horizontal directional drilling).

Construction of gas pipeline crossings by the method of trench digging is conducted based on the mechanized procedure using the equipment for the following works:

- Vegetation clearance on bank sections;

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- Clearing away the top soil to be re-cultivated later on;
- Construction site planning;
- Construction of access roads, temporary dams and watercourse crossings (temporary embankments in case of small watercourses);
- Testing of crossing underwater section;
- Trench digging within a watercourse bed and on bank sections;
- Assembly and welding of pipe joints;
- Weld quality inspection;
- Insulation and installing ballast material on pipe joints;
- Insulation and insulation inspection;
- Pipeline laying;
- Trench backfilling;
- Bank strengthening works.

Construction of gas pipeline crossings using the method of horizontal directional drilling includes the following works:

- Site preparation for drilling equipment installment on watercourse banks;
- Pilot borehole drilling;
- Borehole expanding up to the requested diameter;
- Pipe joint assembly and welding;
- Inspection of work quality, welded joint insulation;
- Insulation and insulation inspection;
- Pipeline laying;
- Equipment dismantling.

During a drilling process a compressed bentonite solution is continuously injected in order to reduce friction, strengthen borehole walls and press out a drilling mud to the surface. Excess of the bentonite solution is collected at inlet and outlet points and pumped out, carried away and

utilised. Bentonite is a fine grade white natural clay of a specific quality, eco-friendly and containing no toxic ingredients.

A list containing basic contraction works required for a new compressor station with the associated structures is almost the same as it is the case for the construction of the line gas pipeline section, having in mind that in this case it relates to a structure to be constructed at the specific location and that all the works required are to be conducted at this specific location.

Construction of the compressor station includes the following works:

- Earth works and scaffolding
- Null cycle works, installing
- Overground structure part, installing covers, block-compartments, metal structures
- Installing aggregates, technological pipelines, equipment for natural gas pumping
- Internal sanitary works, electrical mounting works
- Final adjustments, commissioning and landscaping.

Prior to commencement of excavation preparation and upon determining excavation boundary/perimeter it is necessary to define location of all underground communications within the construction zone and mark it overground.

3. Summary of the main alternatives considered

Gas pipeline route selection is primarily based on:

- Having optimal engineering and geological conditions
- Features of the existing infrastructure (mostly roads and the existing pipelines), considering that pipeline foundation is envisaged along the main highways.

There are various routes determined regarding:

- Line pipelines
- Compressor stations.

Accordingly, several routes have been considered. They all match in the longer part between the Boljevac village in Eastern Serbia to the village Temerin, north-east Vojvodina.

a) Alternatives considered

Line part of the pipeline

The alternatives considered for the gas pipeline South Stream offer different solutions at the pipeline entry in the southern part and at the pipeline exit in the northern part of the Republic of Serbia. The entries considered are those from Rumania and Bulgaria.

The following route alternatives have been considered:

- ALTERNATIVE 1: Zaječar (or Negotin) – Horgoš
- ALTERNATIVE 2: Zaječar – Bački Breg
- ALTERNATIVE 3: Zaječar – Horgoš

Within the alternative with a pipeline entry at the border between Rumania and Serbia, the route would start in the area of the city of Negotin (eastern part of Serbia). The alternative from Bulgaria implies serbian entry to be located more south, in the vicinity of the city of Zaječar, also in the eastern border region of Serbia.

The considered alternatives show more differences regarding the proposed exit points in the northern part of Serbia, on the territory of the Provinz Vojvodina. One alternative runs through the valley of the river Tisa in the north, nearby the village Temerin, and crosses the Hungarian border in the north-west (over the South Backa District and West Backa District) near the area of the village Bački Breg. The other route alternative runs from the village Temerin through the municipalities of Bečej, Ada. Senta, Kanjiža, crossing the Hungarian border in North Banat, within the area of the village Horgoš.

A part of the gas pipeline route identical for all the route alternatives starts in the vicinity of the village Boljevac within the Zajecar District and ends near the village Šajkaš in the Municipality of Titel.

Based on a careful consideration of all the aspects regarding the environmental baseline, technical/ technological solutions and activities during the constraction, exploitation and upon facility decommissioning it has been decided that the route alternative Zajecar-Backi Breg is the most acceptable solution. According to this alternative, the route shall run near the following major villages and cities: Zajecar, Boljevac, Paracin, Cuprija, jagodina, Svilajnac, Velika Plana, Smederevo, Pancevo, Temerin, Vrbas, Kula and Sombor.

Based on that the branches to the Republic of Srpska nad the Republic of Croatia have been defined. The branch to the Republic of Srpska starts near the village Centa and ends in the vicinity of the village Badovinci, Novo Selo. The branch towards the Republic of Croatia starts at

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Backo Dobro Polje, the municipality of Vrbas, and ends at the Danube, near Bačko Novo Selo in the municipality of Bač.

Alternatives for compressor station allocation

Alternatives for compressor station allocation along the route of the gas pipeline South Stream in Serbia are as shown below in Table 2.

Table 2 - Alternatives for compressor station allocation

Route alternatives for the gas pipeline South Stream	Location of CS (in km from entering the Republic of Serbia)	
	CS 1	CS 2
ALTERNATIVE 1S: - Gas supply for Croatia from Serbian territory	86,6 North-east of the city of Paracin	240,4 North of the city of Pancevo
ALTERNATIVE 2S: - Gas supply for Croatia from Serbian territory	146,0 North of the city of Svilajnac	337,0 South-east of the city of Vrbas
ALTERNATIVE 3S: - Gas supply for Croatia from Serbian territory	100,0 North of the city of Cuprija	237,7 North of the city of Pancevo
ALTERNATIVE 1M: - Gas supply for Croatia from Hungarian territory	86,6 North-east of the city of Paracin	261,5 South of the city of Titel
ALTERNATIVE 2M: - Gas supply for Croatia from Hungarian territory	146,0 North of the city of Svilajnac	345,5 South-west of the city of Vrbas
ALTERNATIVE 3M: - Gas supply for Croatia from Hungarian territory	100,0 North of the city of Cuprija	237,7 North of the city of Pancevo
ALTERNATIVE 1a: - Gas pipeline entry from the Rumanian territory, Gas supply for Croatia from Serbian territory	72,0 East of the village of Boljevac	344,1 South of the village of Gospodjinci

The following alternative for compressor station allocation has been adopted: CS 1 at 147,7 km and CS 2 at 342,5 km.

b) Alternative processes

Upon detailed terrain inspection it came to a minor modifications in the gas pipeline South Stream route, Zajecar-Backi Breg alternative. Modifications include spatial deviations up to several hundreds of meters, all in order to facilitate and improve implementation of the project.

Taking into account the aspects of work process, construction, exploitation and the phase upon decommissioning, the alternative to be adopted shall enable the most favourable economic, environmental and social solutions, with minimal safety risks involved.

c) Possibility of project implementation cancelling

The high-pressure gas pipeline South Stream is internationally considered a high priority project. Analysis of its profitability and the benefits its construction and operation could bring for the Republic of Serbia fully justifies not only the project itself, it also creates preconditions for preservation and improvement of environment, health, economic and social aspects for both the population living in a direct vicinity of the high-pressure gas pipeline route but also those in other parts of Serbia.

4. Description of the environmental aspects that might be affected by the project

a) Population

The gas pipeline design and construction processes have taken into account safety zone categories and the respective technical requirements and normatives to be applied in line with the Rolebook on technical conditions and norms for a safe transportation of liquid and gaseous hydrocarbons through high-pressure gas pipelines and oil and gas pipelines for international transportation. It provides maximum safety for people and assets within gas pipeline protection zones, minimizing the probability of an accident.

b) Flora and Fauna

The construction of the gas pipeline South Stream might have effects on the flora and fauna since there are several protected areas in its direct vicinity.

A direct construction impacts on vegetation may be permanent and provisional. A permanent loss refers to the construction areas of the line production management of the high-pressure gas pipeline, metering and regulating stations, compressor stations. These are smaller surfaces and areas with mostly anthropogenic habitats, so it can be deemed that this is no significant impact, all circumstances considered.

A provisional loss of plant communities is related to a terrain preparation measures requiring a humus topsoil removal. A spontaneous vegetation recovery is expected to happen by succession,

since the humus layer will be reinstated into the top soil at backfilling the trench. Removal of plants and trees from a work zone increases the possibility of soil erosion, causes stronger winds and flooding in adjacent areas.

Gas pipeline impact on the fauna is limited. During the construction phase it may cause degradation of habitat and occupy movement corridors for migratory animals (night/day or seasonal migrations) causing habitat fragmentation. These changes are provisional since they occur only during the construction phase, followed by a total or approximate reinstatement of the ecosystem. Execution of works will be in line with the requirements for protected animal species that inhabit the gas pipeline perimeter, especially during period of migration or reproduction (bird nesting, fish spawn) in order to avoid disturbing the endangered animal species and reducing animal population.

A regular gas pipeline operation implies gas transmission through a sealed/closed pipeline system having no impact on the flora and fauna in the respective area.

c) Soil

During gas pipeline construction it comes to a changes in the top soil (due to trench digging, installing pipeline, pig launching and receiving traps, block station, primary metering and receiving station, compressor station). It is necessary to maintain the highest possible quality of the construction works in order to prevent causing exogenic processes in river valleys and the mountain slope sections.

At trench digging in agricultural land, the humus layer should be separated from the rest of the excavated material and deeper layers displaced separately to be used later on as the excavated material to start backfilling a trench with, followed by the top soil and the final reinstatement of the terrain. Backfill material shall not contain any decomposable material and shall protect gas pipeline from welding rods, sharp rocks, metal dross and other damaging materials.

Right upon completion of works, the area around the work zone shall be reinstated and recultivated, so that changes in soil quality are only local and temporary.

A regular gas pipeline operation will not influence the quality of the soil it runs through.

d) Surface Water and Ground Water

Construction of the new gas pipeline will influence the existing water quality of the watercourses it crosses causing local and temporary water rile. The impact rate to the watercourses is directly proportional to duration of the construction works and their scope.

When gas pipeline crosses a watercourse it shall not disturb the surface and ground water flow regime. It implies implementation of the appropriate measures for water extraction – by channeling, drainage or using water extraction pumps.

A trench digging involves also removal of coastal vegetation. Once the piping is laid, a re-cultivation and coastal area landscaping is made. The re-cultivation and landscaping works include reinstatement of all work surfaces. The gas pipeline section through the Republic of Serbia crosses natural and artificial barriers. It crosses the following natural and artificial watercourses: the rivers Beli Timok, Velika Morava (three times), Danube, Tamiš, Karašac, Tisa and the Danube-Tisa-Danube Canal.

The gas pipeline construction will not influence the level and quality of ground water.

The regular gas pipeline operation will not have impact on the existing surface water and ground water quality.

e) Air

The construction works may cause local air pollution from dust particles produced by construction and transportation equipment. Operation of the construction and transportation engines may also produce the following pollutant exhaust gases: nitrogen-oxides, sulfur-oxide, carbon monoxide and hydrocarbons. Welding and operation of diesel aggregates may also have a significant impact on the air quality. The impact on the air quality will be local and temporary. The regular gas pipeline operation will have no impact on the existing air quality.

A noise occurrence is expected during the gas pipeline construction stage, produced by machines and transportation means as a non-stationary noise sources (trucks, trench digging machines...). Conducting of works that produce an increased noise level is not allowed at night in the vicinity of settlements and vulnerable ecosystems (driftwoods, swamps, backwaters, etc). During gas pipeline exploitation noise occurs only by operation of Metering Stations, Regulating Stations and Compressor Stations. Such noise levels have been considered within design phase, so that the noise produced by gas pipeline operation will not disturb environment and the existing wildlife in the area of the gas pipeline and the Compressor Station. The regular operation of CS causes periodical discharging i.e. gas exhausting at high speed rate and with sound emission energy. Many of such nose sources are fitted with sound dampers to achieve noise reduction. The distance to the nearest residential buildings considering, such noise sources shall not exceed the allowed noise level stipulated under "Role book on the allowed environmental noise level" (Official Gazette of the Republic of Serbia, no. 54/92).

f) Buildings

There are no residential buildings along the gas pipeline route. The high-pressure gas pipeline route has been designed with the minimum distance of 200 m to the residential buildings and business entities, ensuring minimum impacts.

g) Immovable cultural properties and archeological sites

There is number of natural resources along the designed gas pipeline route. If the contractor during the construction phase comes across a natural resource being paleontological, geological, mineralogical or petrographical resource, assumed to have the features of natural monument, the contractor shall notify the Institute for Nature Conservation of Serbia and take all the necessary measures to protect such a natural resource until arrival of the authorized person.

Immovable cultural properties, units of special historic, cultural, artistic or other importance are protected in line with the Law on the Protection of Cultural Monuments and with the urban protection measures based on heritage conservation and revitalization. There are specific measures and regimes determined in order to facilitate revitalization program implementation.

If the contractor during the construction phase hits on archeological site or movable objects assumed to have the features of natural monument, the authorized person from the Institute for Nature Conservation of Serbia shall visit the site without delay. It is also necessary to obtain that the site remains undamaged and that the objects preserve their position and place as found.

A normal gas pipeline operation will have no impact on material and immovable cultural resources.

h) Landscape

Construction and normal operation of the gas pipeline will have no impact on landscape changing.

i) Interaction between the above stipulated factors

Composed primarily of methane, the main by-products of the combustion of natural gas are carbon dioxide (CO₂) and water vapor, the same compounds we exhale when we breathe. Natural gas releases 27% less CO₂ emission than fuel oil, for example. The scientific results show that natural gas usage as energy fuel reduces the following:

- Global warming and the 'greenhouse effect' that decrease plant productivity, increase skin cancer, cataract, immunodeficiency and mild illnesses in humans;
- Acid rain that damages crops, forests, wildlife populations, and causes respiratory and other illnesses in humans;
- Photochemical smog that can contribute to respiratory problems and permanent lung damage;
- Disturbance in humid/energy exchange between the earth surface and the atmosphere;
- Changing landscape of earth;

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- Increase in soil and water acidity;
- Increasing development of dry and diluvial land, increasing world hunger;
- Decrease in drinking water quantity;
- Global migrations;
- Adverse impact on general health in humans;
- Number of human victims.

Natural gas as energy fuel enables not only increased efficiency of thermal power plants and industrial facilities, it also contributes to global preservation of the environment.

5. Description of possible significant impacts of the project on the environment that may occur due to the following aspects:

a) Project implementation

Assessment of the possible impacts associated to the project implementation and resulted from the operation of the facility being the subject of the analysis show that the quantitative data can be obtained based on a comprehensive analysis. It seems clear that the impacts are different, taking into account specific spatial relations of the structural content assessed.

1. Noise – limited impact

Vibrations produced by the mechanization used during the construction phase, as well as vibrations and noise produced by facility operation will be in line with the noise level set under the relevant legislation and all possible adverse effects (at compressor stations) mitigated by the appropriate noise protection measures (silencers, mineral wool, etc.)

2. Soil – limited temporary impact

Soil contamination is considered in respect to the two major phases, the construction phase and the gas pipeline operation phase. During the construction phase this issue results from the activities under construction material transport, construction machine operation, accidental lubricant or fuel effusion, etc. Such events may occur with a very small probability and the impacts stipulated are only temporary.

During normal operation within the gas pipeline operation phase there is no soil contamination. In the case of fire and explosion possible effects are only temporary.

3. Occupancy of the land – limited to the locations with surface structures of the project

The gas pipeline is laid underground and the soil reinstated, so that there is no significant impact in terms of occupancy of the land, except in places where surface structures are being constructed such as line production facility for high-pressure gas pipeline operation, compressor stations, metering and regulating stations, etc.

4. Flora and Fauna – limited impact

The gas pipeline construction works causes changes in land surface due to trench digging, pipeline assembly. At trench digging in agricultural land, the humus layer shall be separated from the rest of the excavated material in order to enable a proper trench backfilling and final reinstatement of the terrain. Due to removal of the humus layer and the soil digging an adverse impact on soil quality can be expected. Once the works are done, the area around the work zone is reinstated and re-cultivated. Further soil contamination is prevented by removing all residual waste from the work zone.

Noise and soil vibrations produced by heavy machinery operation and intensified local traffic have adverse effect to animals. Upon completion of the works there will be no such adverse effects.

5. Visual effects – limited impact

Since it is required that the structure of the constructed elements must be adjusted to the environment, it may be considered that the planned structure has no significant adverse impact in terms of change in morphological features and subjective experience of space.

6. Social effects

The common social interest considering, the social impacts of the gas pipeline construction are also positive improving the economic position of the population subsequently facilitating a whole set of global issues and creating better conditions for urban development on a broader scale. A detailed analysis of the situation and the effects shall be described under the Environmental Impact Assessment Study.

Cross-border impacts

It is assumed that there are no such impacts associated to the project. The only cross-border impacts that may be expected to occur during construction and exploitation of this type of project apply to changes in hydrologic regimes and contamination of cross-border rivers, in this case the Danube river. In line with the technical design the Danube crossing will be carried out using the method of horizontal directional drilling and the method of microtunneling with no adverse impact on the water of the Danube.

b) **Usage of natural resources - no impact.**

c) **Emission of polluting material and waste formation - no impact.**

1. Exhaust gases - During the construction and operation of the facility the air contamination by engine exhaust emissions from the construction mechanization is local and temporary. Fuel combustion emissions are minimal.

During the gas pipeline operation phase the following air contamination issues are to be considered:

I accident (gas leakage)

II emergency (fire and explosion)

III Natural gas emission through relief valves and safety valves - negligible quantities released in the atmosphere very quickly due to natural gas composition, causing no significant impacts.

IV Petroleum derivatives and oil fuel combustion emission

A detailed analysis and protective measures in the case of accidents shall be developed under the Environmental Impact Assessment Study.

2. Waste - It has been envisaged to conduct waste treatment in line with the relevant legislation and dispose it at the appropriate dumps. Upon pipeline construction, the excess of the excavated humus layer and other excavated material shall be transported by the vehicles to the dedicated disposal sites.

All the sanitary and process waste water are collected to the reservoirs connected to the waste water treatment system.

The implementation of all the proscribed measures for waste disposal should ensure that there is no adverse impact concerning this issue.

It should be stressed that a detailed preparation of technical solution and the level of natural conditions investigated under the stipulated design phase do not allow a quantitative environmental impact assessment for each specific activity. It primarily prevents a proper calculation of ecological and economic efficiency indices to the project. Such a calculation is foreseen to be prepared under the next stage of the project. The analysis made has confirmed acceptability of the anticipated environmental impacts: valuable natural structures will not be jeopardized.

6. Measures to protect and mitigate environmental impacts

Specific measures of environmental protection have been envisaged in order to prevent and remedy the adverse effects upon environment occurring during the implementation of the project South Stream. These measures of environmental protection may be systematically classified into the following groups:

- Measures to prevent interventions

Measures envisaged by legal regulations and by-laws

Measures of protection against natural disasters

Technical and technological safety

- Measures to mitigate negative impacts and monitoring of nature conservation

Specific measures of air, water and soil protection

Specific measures of protection against noise and vibration

Specific measures of forest conservation

Specific measures of flora and fauna protection

Specific measures of structural safety inside gas pipeline zone of impact

Measures to protect cultural and natural heritage

Organizational measures of safety and monitoring of environment

- Compensation and alternative measures

Measures of prevention, preparedness and responsibility in case of accidents

Measures to remedy effects of accident

Safety measures to prevent and mitigate consequences of potential environmental accidents

The afore mentioned list of environmental protection measures is to be amended by all necessary safety measures which shall appear in the further elaboration of the technical documentation, depending on requirements prescribed by competent institutions.

6.1. Measures to prevent interventions

6.1.1. Measures envisaged by legal regulations and by-laws

Measures envisaged by laws and other regulations and standards imply the application thereof in designing, application of norms and standards in the selection and procurement of instruments and equipment for the operational process in question, as well as the application of all safety measures during the construction and exploitation envisaged by valid legal regulations

6.1.2. Measures of protection against natural disasters

In all stages of designing, construction and exploitation of the structure it is necessary to implement safety measures envisaged by the "Emergency Act" (Official Gazzette of RoS No.111/09), such as: floods, accumulation of ice, stormy winds, earthquakes, large fires, water and air pollution and similar incidents, endangering people and causing great material damage.

6.1.3. Technical and technological safety

- detailed technical and technological measures are a constitutive part of preliminary i.e. main design
- natural gas inside the pipeline (gas line) has to be within a closed technological process. No emission of hydrocarbons is allowed from the unit, as well as their potential discharge at points other than the ones envisaged by technical documentation
- Designs need to include a special annex covering fire protection measures specifically during designing, execution and exploitation stages. Specific technical requirements for the construction of electrical installations (Ex proof) of structures to be used for transportation and distribution of natural gas, stipulate that installation can be executed only in compliance with the design approved by competent fire protection institution;
- Protection of structures against atmospheric discharges is envisaged by the main electrical engineering design;
- Based on the derived calculation, it is necessary to accurately size installations, regulation and safety fixtures in accordance with the valid technical norms and standards.
- The regulation and safety fixtures need to be properly laid out, so as to ensure installations against bursting due to uncontrollable rise of pressure.
- Pipe installations need to be stably laid out via sliding and solid supports.

6.2. Measures to mitigate negative impacts and monitoring of environment protection

6.2.1. Specific measures of air, water and soil protection

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Specific measures of air protection

a) during construction of the structure

Since this is only a periodic impact of limited scope, it is not necessary to implement environment protection measures unless competent institutions order otherwise.

b) during exploitation of the structure

After the start-up of the structure and after the facilities have started to operate normally, based on the Environmental Protection Act (Official Gazette of RoS No. 135/04, 36/09 and 72/09), Regulation on emission limit values, manner and deadlines of measurements and data recording (Official Gazette of RoS No. 30/97) stipulates mandatory control measuring of emission once a year, unless the inspection has ordered otherwise.

c) after the structure has been closed

After closing, the structure does not affect air in any way.

Specific measures of water protection

a) during construction of the structure

- Since the designed route at several points crosses the routes of the rivers: Tisa, Velika Morava, Crni Timok, etc., particular attention should be paid to the protection of forests and areas around rivers subject to inundation during construction and exploitation of the gas pipeline, as well as to the maximum potential conservation of wet areas around these rivers, all in compliance with the Water Act (Official Gazette of RoS No.30/10)
- Construction of compressor and block station in such, fragile ecosystems is not allowed.
- it is necessary to prevent discharge of hazardous and waste harmful substances into waters.

b) during exploitation of the structure

Free discharges of fecal waters into the recipients is strictly forbidden. The design to be elaborated will envisage the construction of waste water sewage systems with automatic waste water treatment systems at locations of compressor stations.

If possibly a discharge into water course is necessary, special attention needs to be paid to the "Decree on Water Classification" (Official Gazette of SRS, No. 5/68) as well as to adhere to the "Ordinance on Hazardous Substances in Water " (Official Gazette of SRS, No. 31/82) which defines maximum quantities of hazardous substances that must not be exceeded.

c) after the structure has been closed

After closing, the structure does not affect waters in any way.

Specific measures of soil protection

a) during construction of the structure

- The planned gas pipeline route to a large extent crosses over the agro ecosystem areas of: vallies of Crni Timok and of Velika Morava, and over Negotinska Krajina so it is necessary to define a narrow (50 m) and wider area (100 m) of impact of the construction and operation of the gas pipeline rout upon the environment (particularly from the aspect of the conservation of the top quality agricultural soil and production of food of acceptable quality). Zones of impact and quantities of pollutants that may enter soil and water during construction and exploitation should be defined, and based on that define measures and recommendations for the use of soil. Consider the areas both on the left and right of the route.
- For the construction of a waste disposal site and access and manipulation roads, areas within lower soil category should be selected. It is not allowed to use top quality plough lands for such purposes.
- During the execution of the design in question certain amounts of solid waste shall be created that the contractor will be obligated to dispose at a site designated based on the Law on Waste Management (Official Gazette of RoS No. 36/09).
- Major repairs and maintenance works on construction machinery in work areas should be avoided, and if they are necessary apply required safety measures. The plans i.e. work site organization design, for each route section should define and ensure temporary sites for disposal of construction material and equipment, temporary sites for the collection of municipal waste and their regular evacuation by the local municipal utility services.
- The contractor has to install temporary discharge points in all drainage trenches, canals and other draining facilities that will be closed during execution of works and also at all points where shutting down of the draining system might cause damage
- If during the site preparation works an emergency spilling of fuel, oil or other hazardous and harmful substances occurs, it is necessary to evacuate the contaminated soil to the site and according to the requirements of the competent utility service and immediately restore the site;
- During execution of works maximally use existing roads, pathways and already used areas in order to avoid inflicting damage to nature. Thus the negative effects upon the region, including the removal of vegetation and damaging of the root system of the surrounding vegetation will be reduced.
- All storage sites, disposal sites, landfills and access roads should be located far away from protected areas, settlements and recreational zones.
- All temporary roads and passageways that are not used for long term maintenance should be closed and returned to the use of the surrounding soil or based on the agreement with the local municipal authorities.
- All finishing earthworks should be adjusted to the existing contoures (geoplastics) of the site.
- Colors, materials and structure of built elemenets needs to be adjusted to the environment

b) during exploitation of the structure

- Permanent deposition of waste along the route and in the corridor, and particularly in the vicinity of settlements is forbidden.
- It is necessary to foresee regular inspections of erosion processes and prompt reactions in terms of urgent interventions related to the remediation of the problem.
- Free discharges of fecal waters into the soil and recipients is strictly forbidden.

c) after the structure has been closed

After closing, the structure does not affect soil in any way. The equipment (gas pipeline) may remain in the ground, while soil contamination that would occur as a consequence of corrosion process and of disintegration of steel pipes is negligible.

6.2.2. Specific measures of protection against noise and vibration

a) during construction of the structure

The investor should list adequate requirements when ordering the equipment. Safety measures aimed to reduce effects of noise during construction of sections of planned gas pipeline in the vicinity of settlements should be foreseen (allowed level of noise during the daylight is 65 dB, and during the night 55 dB).

b) during exploitation of the structure

The investor is obligated to follow the instructions provided by the manufacturer of the equipment which has been sized not to exceed the level of noise stipulated by the Law on Protection against Noise in Environment (Official Gazette of RoS No.36/09 и 88/10). The design needs to foresee the activities aimed to reduce the level of noise and vibrations produced by power and technological equipment and ventilation chambers. If the level of noise exceeds the allowed threshold it will be necessary to apply some of the additional safety measures in order to reduce noise. In order to eliminate the noise of ventilation chambers, the sections for intake of air are to be insulated by mineral wool and perforated sheets.

c) after the structure has been closed

After closing, the structure does not generate any effects.

6.2.3. Specific measures of forest conservation

The design should foresee minimal removal of existing forest vegetation on the gas pipeline route during the site preparation for construction works. If afforesting is needed, use nursery plants of indigenous woody and bushy kinds of trees, in accordance with the prevailing type of the forest as well as with the requirements submitted by competent institutions.

Along the entire length of the corridor it is forbidden to cut down all varieties of trees that are deemed as rare, relic, endemic or endangered.

6.2.4. Specific measures of flora and fauna protection

Execution of works will be aligned with the needs of protected animal species living inside the gas pipeline area, particularly during migration and reproductive periods (nesting, spawning..) in order to avoid harassment of endangered animal species and decrease of population. Thus unobstructed migrations of animals between protected subpopulations at protected natural habitats will be ensured. Therefore it is necessary to form ecological corridors that will reconnect isolated areas of natural habitats.

6.2.5. Specific measures of structural safety inside gas pipeline zone of impact

In designing and construction of the gas pipeline, particular attention should be paid to the class of the shelterbelt and accordingly it is necessary to apply all technical requirements and norms for these classes stipulated by the Ordinance on technical requirements and normatives for safe transportation of liquid and gaseous hydrocarbons by magistral gas pipelines and oil and gas pipelines for international transport.

Considering the type and purpose of the structure, during the construction and exploitation the transport of chemical flammable explosive or otherwise hazardous or harmful substances may be expected. Therefore it is necessary to consider the issue of accidental situations and to define adequate procedures and measures for the protection of people, environment, prevention of accidents and mitigation of their adverse effects.

6.2.6. Measures to protect cultural and natural heritage

The route of the gas pipeline has been designed so as to maximally avoid the protected natural heritage sites and all activities planned at such areas are implemented according to the requirements stipulated by the Institute of Nature Protection of Serbia and Institute of Nature Protection of Vojvodina, and in accordance with the article 57 of the Nature Conservation Act.

On the route sections in the vicinity of valuable archeological sites the contractor is obligated to lay the gas pipeline pipes completely in accordance with the requirements stipulated by competent institutions. If during the construction of the gas pipeline the contractor comes across a natural good that is of geological paleontological origin or mineral and petrografic origin, and which is deemed to have properties of a natural monument, the contractor is obligated to inform the Institute of Nature Protection of Serbia and to undertake all necessary measures aimed to protect the natural good from damage until the arrival of an authorized person.

6.2.7. Organizational measures of safety and monitoring of environment

Organizational measures of safety should be regulated by internal acts of the company elaborated in accordance with valid legal regulations regulating the environment protection.

In order to ensure environmental safety in all phases of project implementation it is necessary to foresee ecological monitoring at certain points on the route.

6.3. Compensation and alternative measures

6.3.1. Measures of prevention, preparedness and responsibility in case of accidents

While performing works involving gases one needs to be cautious since handling of natural gases is ranked as one of the activities with the high level of hazard, considering the chemical and physical properties of gas, such as flammability and explosiveness. Fires, explosions and other accidents mostly happen due to inappropriate handling of installations and due to insufficient awareness of the properties of natural gas. The rule to be absolutely obeyed in areas where gas is applied and handles is the : "NO SMOKING" rule.

In order to ensure the safety of people, technological process and decrease of material, environmental, economic and social damage from potential fires and breakdowns for the project South Stream, the Main project of fire protection as a constituent part of the technical documentation foreseen by Fire Protection Act (Official Gazette of RoS No.111/2009) should be elaborated.

For example, for each compressor station (CS) the following will be installed:

- automatic system of fire protection signalization, control of gas presence and fire extinguishing on compressor unit;
- automatic system of fire protection signalization in auxiliary buildings and facilities on CS;
- system of warning and management of evacuation in case of a fire on CS.

In case of a fire or breakdown in the operation of this system it is necessary to ensure the cooperation in automatic mode with systems of technological process management, ventilation systems, smoke control system, firefighting water supply system and other systems of safety and management of technological processes and work processes, as well as the communication with CS staff related to breakdown (including fire) accidents and management of activities in the newly occurred situation.

6.3.2. Measures to remedy effects of accidents

After an accident – fire, or explosion consequences are to be remediated in the same manner as after any other fire which is not caused by ignition of natural gas: reparation of the damaged section of the gas pipe line, burned structures, tall vegetation and similar are removed and transported to a dedicated deposition site.

Remediation measures, including soil remediation, water treatment and similar are not necessary since natural gas as well as the products of its combustion do not threaten these media.

6.3.3. Safety measures to prevent and mitigate consequences of potential environmental accidents

Safety measures to prevent and mitigate consequences of potential environmental accidents imply all afore mentioned measures, from the ones to be observed during the designing and construction stages, up to those related to regular maintenance.

Impact assessment, i.e. accident risk exposure, includes the identification of potential accident hazards, identification of mechanisms of its occurrence and review of potential consequences. In further elaboration of the documentation it is necessary to analyze the problem of accidental situations, during the construction stage as well as during the exploitation and to define suitable procedures and

environmental safety measures, prevention of accidents and mitigation of potential negative effects, if necessary.

Detailed elaboration of safety measures is foreseen in further technical documentation i.e. in the Study of Environmental Impact Assessment of the project South Stream both according to the valid legal regulation, as well as according to the requirements of competent institutions.

7. Non-technical summary of information from 2 – 6

7.2. Project description with site description

Magistral gas pipeline South Stream is a system for the transportation of gas (Russian abbreviation 'GTS') for the purpose of export delivery of the Russian natural gas in the volume of up to 63.0 billion m³ annually (including the fuel gas) into the countries of South and Central Europe.

It comprises the following sections: offshore section of the gas pipeline through the Black Sea and ground section through the countries of South and Central Europe.

The section running through the territory of the Republic of Serbia includes:

- a section of magistral gas pipeline (MG),
- a section of gas pipeline for the Republic of Srpska,
- a section of gas pipeline for Croatia (depending on the adopted version)

The length of the designed section of the route of magistral gas pipeline (MG) South Stream across the territory of Serbia amounts to 421.5 km from the starting point on the border with Bulgaria to the final point – on the border with Hungary.

Border lines (sections) of the routes designed at the territory of Serbia include cross link point of MG with state borders of the Republic of Serbia – the border between Serbia and Bulgaria, the border between Serbia and Hungary, the border between Serbia and Croatia, the border between Serbia and Bosnia and Herzegovina (branch towards the Republic of Srpska). The supply of Bosnia and Herzegovina is planned to be implemented from the territory of Serbia via the existing gas transportation system owned by JP Srbijagas.

Main artificial and natural obstacles on the route are large and medium waterway crossings: rivers Danube, Tamis, Tisza, canals Karas, Danube-Tisza-Danube, Veliki kanal, and also the highways of I and II categories and railways.

Компресорске станице по траси магистралног гасовода се планирују на следећим километрима: КС-1 – км 147,7; КС-2 – км 342,5.

South branch of the gas pipeline (to Serbia) is foreseen at km 83.6 in Paracin region, north branch (to Serbia, Bosnia and Herzegovina) – at km 310.5 in the region of Gospodjinci junction point.

The project foresees incremental increase of the amount of gas to be transported over the territory of the Republic of Serbia from 20.9 billion m³ annually (2017) up to 40.5 billion m³ annually (2025).

7.3. Main project alternatives

There were certain alternative routes of the gas pipeline in question, how the optimal one has been adopted considering the legal requirements, the demands of the entity for natural gas as well as the economic feasibility of the project.

Currently, in this case there are no alternatives for the natural gas as an energy generating product, because all other energy sources do not meet the criteria in terms of capacity or are not suitable for climate, geographical or other properties of the project.

7.4. Description of environmental factors that may be affected by the project

All the afore mentioned facts are indicating that the explanation of the interrelations and impact upon the environmental factors may be expected if each of the listed criteria is analyzed within specific spatial relations and by quantification procedures it is brought to the representative indicator.

7.5. Description of potential significant environmental impacts of the project that may be caused by

(a) existence of the project

Noise – limited impact

Soil – limited and temporary

invasion of the area – limited merely to the location where surface sections of the project are placed

Visual effects – limited

Social effects – positive impacts of the project are being assumed

(b) use of natural resources – no impact

(c) emission of contaminants and waste generation – no impact

7.6. Safety measures

Respecting the properties of the site, the purpose of the areas within the road corridor, as well as main regulations of authorities within the framework of the majority of criteria defining the interrelations natural gas – environment, and based on the already quantified indicators, the requirements in terms of necessary safety measures have been identified and can be systemized into the following groups:

- Measures to prevent interventions

Measures envisaged by legal regulations and by-laws

Measures of protection against natural disasters

Technical and technological safety

- Measures to mitigate negative impacts and monitoring of nature conservation

Specific measures of air, water and soil protection

Specific measures of protection against noise and vibration

Specific measures of forest conservation

Specific measures of flora and fauna protection

Specific measures of structural safety inside gas pipeline zone of impact

Measures to protect cultural and natural heritage

Organizational measures of safety and monitoring of environment

- Compensation and alternative measures

Measures of prevention, preparedness and responsibility in case of accidents

Measures to remedy effects of accident

Safety measures to prevent and mitigate consequences of potential environmental accidents

8. Data about potential difficulties, technical defaults or lack of adequate professional knowledge and skills discovered by the project owner

Within the framework of elaboration of technical documentation of the project, the application of Russian norms and standards used for the construction of the magistral gas pipeline at the territory of the Russian Federation and countries of ex Soviet Union, which is safe and aligned with the requirements of the Investor – JAD Gazprom, has been agreed.

The observance of requirements and standards of international financial institutions is necessary in further elaboration of the technical documentation of environment protection as well, and accordingly the expansion of the content of the Study on Environment Impact Assessment, provided that these requirements are not contrary to the valid legal regulations in the Republic of Serbia.

All listed impact have been categorized according to the currently available information as well as based on previous experiences in implemented projects, while detailed quantification of indicators will be presented in Study on Environment Impact Assessment. Based on these findings, and specific environmental indicators that will be the result of elaborate environmental researches implemented by the Institute Jaroslav Cerni, with suitable numerical procedures and functional rules, accurate assessment of potential negative environmental impacts of the project will be performed. It is assumed that certain indicators will deviate from the initial values presented in the Request.

Annex 2

PART I

CHARACTERISTICS OF THE PROJECT ENVIRONMENT

No.	Question	YES/NO	<i>Which characteristics of the Project environment could be affected by the impact and how?</i>	<i>Is the effect likely to be significant? Why?</i>
1. Will construction, operation or decommissioning of the project involve actions which will cause physical changes in the locality (topography, land use, changes in waterbodies etc.)?				
1.1	Permanent or temporary change in land use, land cover, or topography, including increases in intensity of land use?	YES	No impact (alterations of land use occur only at sites with buildings)	No effects (only if other structures are built in the vicinity of a gas pipeline, investors have to request conditions „South Stream“)
1.2	Clearance of existing land, vegetation and buildings?	YES	Limited (on the gas pipeline route it is necessary to remove the top soil in order to dig in the pipeline)	No effects
1.3	Creation of new land uses?	YES/NO	Limited (Only at LPUMG, CS, BS and similar, the use of land will be changed)	No effects
1.4	Pre-construction investigations, for example boreholes, soil testing?	YES	No impact	No effects
1.5	Construction works?	YES	Temporary and limited	No effects
1.6	Reinstatement of the site to a fit state after the completion of the Project?	YES	No impact	No effects
1.7	Temporary sites used for	YES	No impact other than visual effect	No effects

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	construction works or housing of construction workers?		and increase of activities	
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill excavations.	YES	Limited (during project construction a trench is digged, the gas pipeline is slowly laid down into the ground, and subsequently allis to be returned to the original state. Ground building include LPUMG areas i.e. CS1 and CS2, MS and RS and similar)	No effects (The structure of built elements will be aligned to the environment)
1.9	Underground works including mining or tunnelling ?	YES/NO	No impact (in places of gas pipeline laying over water barriers if there is a rock or gravel bottom, as well as quicksand microtunneling is applied)	No effects
1.10	Reclamation works?	NO	No impact	No effects
1.11	Dredging?	NO	No impact	No effects
1.12	Production and manufacturing processes ?	NO	No impact	No effects
1.13	Facilites for storage of goods and material?	YES	No impact	No effects
1.14	Facilities for treatment or disposal of solid wastes or liquid effluent?	YES	No impact (Watertight tanks for storage of waste water and condensate as well as containers for solid waste are installed)	No effects (A system for waste water treatment as well as tanks for condensate which by pump system is emptied into tank trucks is foreseen)
1.15	Facilities for long term housing of operational workers?	YES	No impact	No effects
1.16	New road, rail or river traffic during construction or operation?	YES	Limited (Construction of double-track access roads KS-1, KS-2 as well as artesian wells is foreseen. Designed access roads should be	No significant effects (Access roads are designed in accordance with requirements of

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			connected to existing roads)	valid norms and contribute to development of infrastructure)
1.17	New road, rail, air, water borne or other transport infrastructure including new or altered routes and stations, ports, airports, etc.?	YES	Limited (In accordance with the guidelines for organization and ensuring of the safety on the roads, for orientation of transport drivers, signs and directions are to be placed on the designed roads in accordance with standards)	No significant effects
1.18	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movement?	YES	Temporary (During the project implementation there will be short term alteration in the traffic regime in accordance with instructions of competent institutions)	No effects
1.19	New or diverted transmission lines or pipelines?	NO	No impact (Only within CS and LPUMG a construction of a water supply system and a sewage system is foreseen, as well as laying down of a pipeline from the gas boiler room to every facility -consumer)	No effects
1.20	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers ?	NO	No impact	No effects
1.21	Stream Crossings?	YES	Limited and temporary (waterway beds and banks intercrossing with the gas pipeline after the end of construction will be repaired and returned to original condition)	No effects
1.22	Abstraction or transfer of water from ground or surface waters ?	YES	Limited (Sources of water supply for designed CS are drilled wells)	No effects

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1.23	Changes in water bodies or the land surface affecting drainage or run-off ?	NO	No impact	No effects
1.24	Transport of personnel or materials for construction, operation or decommissioning ?	YES	Temporary (Increased activities during project construction)	No effects
1.25	Long term decommissioning which could have an impact on the environment?	YES	No impact	No effects
1.26	On-going activity during decommissioning which could have an impact on the environment?	NO	No impact (pipes may be left in the ground or taken out of the ground and transported to the waste disposal site, while the site of works would need to be returned to the original state. Most surface structures are container type structures that may be easily removed)	No effects
1.27	Influx of people to an area either temporarily or permanently?	YES	Assumed positive impact	Positive effects (Project construction will improve the economic situation of the population and thus create more favorable conditions for the development of urban units at a wider area)
1.28	Introduction of new species ?	NO	No impact	No effects
1.29	Loss of indigenous species or genetic and biological diversity?	NO	No impact	No effects
1.30	Other?	NO	No impact	No effects
2. Will construction or operation of the Project use natural resources such as land, water, materials or energy especially any resources which are non-renewable or in short supply?				

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2.1	Land especially undeveloped or agricultural land?	YES/NO	Limited (Such areas are used for digging the gas pipeline pipes in, but it does not change the purpose of these areas except in those where surface structures of the project are located)	No significant effects
2.2	Water?	YES/NO	Limited (smaller quantities for the water supply of the sites at which the presence of employees is foreseen)	No effects
2.3	Minerals?	NO	No impact	No effects
2.4	Stone, gravel, sand?	NO	No impact	No effects
2.5	Forests and timber?	NO	No impact	No effects
2.6	Energy, including electricity and liquid fuels?	YES/NO	Limited (Electricity supply of line consumers will be conducted from middle voltage network 10 kV (for the area of central Serbia) or 20 kV (for the area of Vojvodina) regional company for distribution of electricity.	No effects
2.7	Other resources?	NO	No impact	No effects

3. Will the project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?

3.1	Will the project involve the use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, water supply)?	YES (Natural gas, storage of petroleum products for the operation of KA and diesel fuel for operation of compressor aggregates and diesel fuel for operation of breakdown diesel elec. station	No impact under regular mode of operation, but in accidental situations there is a risk of fire and explosion.	No effects (Only in case of accidents)
3.2	Will the project result in changes in the occurrence of disease or affect disease carriers (for example diseases transmitted by insects or by water)?	NO	No impact	No effects
3.3	Will the project affect the welfare of people eg by changing living conditions?	NO	No impact (If natural gas is used as an energy generating product, emissions of harmful gases into air are very small)	No effects
3.4	Are there especially vulnerable groups of people who could be affected by the project e.g. hospital patients, the elderly ?	NO	No impact	No effects
3.5	Other causes?	NO	No impact	No effects
4. Will the project produce solid wastes during construction or operation or decommissioning ?				
4.1	Spoil, overburden or mine wastes?	NO	No impact (all excavated soil will be used for backfilling of the trench and remaining	No effects

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			quantities will be transported to a dedicated place)	
4.2	Municipal wastes (household or commercial wastes) ?	NO	No impact	No effects
4.3	Hazardous or toxic waste (including radioactive wastes)?	YES	No impact	No effects
4.4	Other industrial process waste?	YES (Drainage oil and spilling of breakdown diesel fuel	No impact (for breakdown spilling of diesel fuel from HDES an underground tank is foreseen)	No effects
4.5	Surplus product?	NO	No impact	No effects
4.6	Sewage sludge or other sludges from effluent treatment?	YES (condensate)	No impact (condensate trapping from the gas pipeline is into a underground container which is located on MC area. The steam is transported out of MC by pupming into a tank truck)	No effects
4.7	Construction or demolition waste?	YES	No impact (all the waste is collected into containers for soild wastes)	No effects
4.8	Redundent machinery or equipment?	NO	No impact	No effects
4.9	Contaminated soils or other materials?	NO	No impact	No effects
4.10	Agricultural wastes?	NO	No impact	No effects
4.11	Other types of waste ?	NO	No impact	No effects
5. Will the project release pollutants or any hazardous, toxic or noxious substance into air?				
5.1	Emission from combustion of fossil fuels from stationary or mobile sources?	YES	No impact (they are local and in limited quantities)	No effects

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5.2	Emissions from production processes?	YES (clean out and gas ventilation outlets)	No impact (Natural gas is lighter than air and it disperses into atmosphere very quickly)	No effects
5.3	Emissions from materials handling including storage or transport ?	NO	No impact	No effects
5.4	Emission from construction activities including plant and equipment?	YES	Locally limited and temporary impact (in the construction phase of the project from construction machinery)	No effects
5.5	Dust or odours from the handling of materials including construction materials, sewage and waste?	YES	Locally limited and temporary impact (in the construction phase of the project the dust is raised)	No effects
5.6	Emissions from incineration of waste?	NO	No impact	No effects
5.7	Emissions from burning of waste in the open air? (for example, cut material, construction remains)?	NO	No impact	No effects
5.8	Emissions from other sources?	NO	No impact	No effects
6. Will the project cause noise and vibration or release of light, heat energy or electromagnetic radiation ?				
6.1	From the operation of equipment e.g .machines, ventilation plants, crushers?	YES	No impact (Safety measures will be applied)	No effects
6.2	From industrial or similar processes?	YES	No impact (Safety measures will be applied)	No effects
6.3	From construction or demolition?	YES	Locally limited and temporary impact (in the project construction phase from construction machinery)	No effects
6.4	From blasting or piling ?	NO	No impact	No effects
6.5	From construction or operations traffic?	YES	No impact (Safety measures will be	No effects

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			applied)	
6.6	From lighting or cooling systems?	YES	No impact (Safety measures will be applied)	No effects
6.7	From sources of electromagnetic radiation? (implies effects to nearby sensitive equipment, as well as to the people)?	NO	No impact	No effects
6.8	From other sources?	NO	No impact	No effects
7. Will the project lead to risks of contamination of land or water from releases of pollutants onto the ground or into the sewers, surface waters, ground water, coastal waters or the sea?				
7.1	From handling, storage, use or spillage of hazardous or toxic materials ?	YES	No impact (diesel fuel, or petroleum products are stored in dedicated and safe places)	No effects
7.2	From discharge of sewage or other effluents (treated or untreated) to water or land?	NO	No impact	No effects
7.3	By deposit of pollutants emitted to air, onto the land or into water?	NO	No impact	No effects
7.4	From other sources?	NO	No impact	No effects
7.5	Is there a risk of long term build up of pollutants in the environment from these sources ?	NO	No impact	No effects
8. Will there be any risk of accidents during the construction or operation of the project which could affect human health ?				
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous or toxic substances?	YES	In case of an accident and leakage of natural gas into the environment there is an increased hazard of fire or potential explosion	The effect of natural gas leaking could be a fire or explosion due to negligence and which might endanger neighbouring facilities.
8.2	From events beyond the limits of normal environmental protection e.g. failure of appropriate pollution control systems ?	NO	No impact	No effects
8.3	From any other causes ?	NO	No impact	No effects
8.4	Could the project be affected by natural disasters causing environmental damage	NO	No impact	No effects

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	(for example, floods, earthquakes, landslides, etc.)?			
9. Will the project result on social changes, for example, in demography, traditional lifestyles, employment ?				
9.1	Changes in the population size, age, structure, social groups ?	NO	No impact	No effects
9.2	By resettlement of people or by demolition of homes of communities or community facilities e.g. schools, hospitals, social buildings?	YES/NO	No impact (potentially at the very location of the route several uninhabited structures may be destructed based on approval of a competent institution)	No effects
9.3	Through in migration of new residents or creation of new communities ?	YES/NO	Potential positive impact	Positive effects (Project implementation improves the economic sphere of the area and thus creates more favorable conditions for the development of urban areas in wider regions)
9.4	By placing increased demands on local facilities or services in housing, education, health ?	YES	Limited impact (at places where permanent presence of employees is foreseen)	No effects
9.5	Opening of new jobs during By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy ?	YES	Positive impact	Positive effects (at certain locations new jobs are constituent parts of the project)
9.6	Any other causes?	NO	No impact	No effects
10. Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned developments/activities in the locality ?				
10.1	Will the project lead to pressure for consequential development	YES	Positive impact	Positive effects

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Impact Assessment for the South Stream Project*

	which could have a significant impact on the environment , for example, increase in population, new roads, new development of auxilliary industrial capacities or public services, etc.?			(possible further development of infrastructre and urbanization of the area)
10.2	Will the project lead to development of supporting facilities, ancillary development or development stimulated by the project that may affect the environment, for example auxilliary infrastructure (roads, electricity supply, solid waste or waste water treatment, etc.), development of settlements, extractive industry, supply, etc.?	YES	Positive impact	Positive effects (Considering the importance of the project the accelerated development of other infrastructure along the gas pipeline route is probable)
10.3	Will the project lead to the after use of the site which could have an impact on the environmen t?	NO	No impact	No effects
10.4	Will the project set a precedent for later developments ?	YES	Positive impact	Positive effects (Considering the importance of the project the incentive for the development of large projects based on principles of good practice applied in this project is probable)
10.5	Will the project have cumulative impacts due to proximity to other existing or planned projects with similar effects ?	YES	Positive impact	Positive effects (The Project will have cummulative effects and initiate the further development of gas infrastructure)

PART II

Properties of the wider area at which the project is planned

For every property of the project listed below, it needs to be considered whether any of listed environment components can be affected by a project impact.

QUESTION: Are there any environment components on the site or in the site vicinity that can be affected by a project impact?

- Considering the scale of the project there are minor impacts (necessary reclamation of the land along the route, increased traffic, intercrossing of the waterway and similar) however all impacts have been minimized and limited.

QUESTION: Is the project located on the site at which it will probably be visible to many people?

- Magistral gas pipeline will be dig in and only surface parts of the project such as MS, LPUMG facilities i.e. CS, and similar will be visible

QUESTION Is the project to be constructed on a cleared site, causing the loss of greenery?

- Yes, but the loss of greenery at the larger part of the route is temporary. After completion of works the land will be returned to original purpose excluding the location where CS, По завршетку радова земљиште ће се вратити првобитној намени осим локација где су постављене КС, LPUMG facilities, BS and similar are located.

QUESTION: Is the project site or the surrounding land that will be affected by project impact used for certain private or public purposes, for example:

- No

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QUESTION: Are there any plans for the future use of land at the location or in the vicinity that may be affected by project impact?

- No

QUESTION: Are there areas at the site or in the vicinity that are densely populated, that might be affected by project impact?

- No

QUESTION: Are there areas of sensitive land use at the site or in the vicinity, that may be affected by the project impact?

- No

QUESTION: Are there areas at the site or in the vicinity with important, high quality resources or insufficient resources, that may be affected by the project impact:

- Considering the scale of the project it was impossible to avoid all of these areas but all impacts have been reduced to minimum.

QUESTION: Are there areas at the site or in the vicinity that have already been contaminated or suffering environmental damage, for example at places where existing legal environmental standards have been exceeded, that may be affected by the project impact?

- Considering the advantages of natural gas in comparison to other fossil fuels it is assumed that the project will increase the quality of the environment

QUESTION: Are there any possibilities that the project site may be affected by an earthquake, settling, sliding, floods or extreme climate conditions, such as temperature differences, fogs, strong winds that may lead to project causing problems to environment?

- There is a possibility but safety measures are foreseen

QUESTION: Is it probable that project leakages will have consequences upon the quality of

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environment factors:

- No. Impact of this type will be of local and temporary nature

QUESTION: Is it probable that the project will affect the availability or sufficiency of resources, locally or globally:

- No

QUESTION: Is there a possibility that the project will affect human health or community welfare:

- It is assumed that the project will have a positive impact upon the air quality, sense of personal safety of individuals, employment, economic conditions and etc.

Request prepared by:

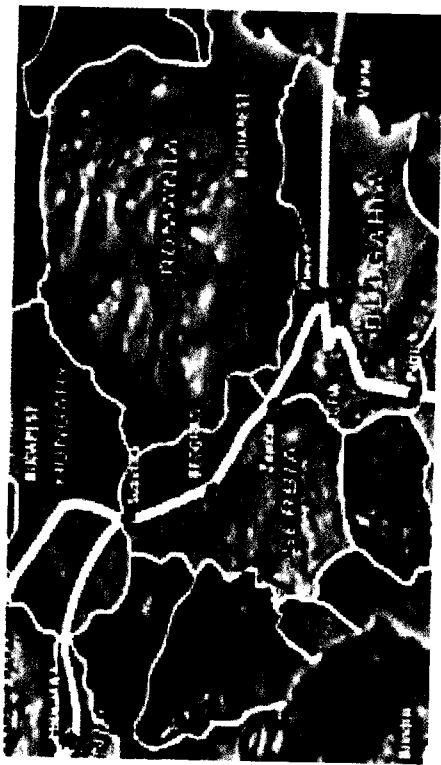
Responsible Design Engineer: Dušan Medić, MSc. Mech.Eng

Specialist Associates:

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- dr Jasminka Amidžić, MSc., S.PI
- Dragana Škorić, MSc. Bio
- Adriana Striković, MSc. Env.Pro
- Maja Dakić, MSc. Agr.Eng.

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**“SOUTH STREAM PIPELINE” ON THE TERRITORY OF REPUBLIC OF SERBIA
CONSTRUCTION AND OPERATION
NOTIFICATION**



1. DATA ON PROJECT PROPONENT

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2. INFORMATION ON THE PROPOSED ACTIVITY

D) Information on the nature of the proposed activities

Type of the proposed activities

Construction and exploitation of the «South Stream» gas pipeline section within the territory of Serbia

Is the proposed activity listed in the Appendix I to Espoo Convention?

Yes.

Appendix I to Espoo Convention?

Appendix I: 8 to the Espoo Convention. Oil and gas pipelines with large diameter.

Scope of the proposed activity

Construction and exploitation of the «South Stream» gas pipeline section within the territory of Serbia

Scale of the proposed activity

It is planned to construct a pipeline with diameter of 1400 mm and with pressure of 9,8 MPa with loops. The designed capacity of the «South Stream» gas pipeline will amount up to 40,5 billion cubic meters per year. It is planned to construct 2 compressor stations (CS). The total length of the gas pipeline section within the territory of Serbia is about 422,4 km.

For providing gas supply to end-users in Republic of Srpska construction of offshoot pipeline with diameter of 300 mm and with pressure of 9,8 MPa is included in scope of work. The total length of offshoot pipeline within the territory of Serbia is about 105,8 km.

For providing gas supply to end-users in Croatia construction of offshoot pipeline with diameter of 500 mm and with pressure of 9,8 MPa is included in scope of work. The total length of offshoot pipeline within the territory of Serbia is about 52,8 km.

Purpose of the proposed activity

The main purpose of the «South Stream» project is to satisfy the additional demand for natural gas in Europe. The project purposes also include:

- Diversification and safety of natural gas supply to Europe
- Enhancement of economic development and new jobs formation in participating countries
- Assurance of natural gas availability as environmentally friendly power source

Rationale for the proposed activity

The increase of gas supply volumes and elimination of transition risks become the key issues of the European continent energy security. By the years 2020-2025 Europe will additionally require about 200 billion cubic meters of gas per year. The existing gas pipelines running from Russia to Europe will not be able to satisfy the increasing demand for gas to the full extent.

- The «South Stream» gas pipeline assures additional safety of cheap and clear fuel supply to Europe.
- The project is cost effective since it uses a strong resource base for satisfaction of European market increasing demands.
- The project is technically feasible since the participating countries have wealth of experience in gas pipelines designing, construction and exploitation in similar conditions.

Strategic partnership agreements were signed with Bulgaria, Serbia, Hungary, Greece, Slovenia, Croatia, a number of agreements - with European companies (Bulgarian Energy Holding, Srbia Gaz, etc.). Several joint venture companies were formed on the territory of countries, participating in the project.

Description of the proposed activity

The project realization consists of the following stages: construction, exploitation and de-commissioning of the pipelines and compressor stations. The process of the gas pipeline laying includes a number of operations that can be divided into the following groups:

- Excavation works (basically trenching and backfilling);
- Welding and pipe-laying works during gas pipeline linear part construction;
- Utilities crossing;
- Crossing of water bodies with controlled and non-controlled water flow (cut-and-cover construction, trenchless tunneling: controlled directional drilling or – in hard rock, gravel and running sand – microtunneling)
- Gas pipeline cleaning and testing,
- Gas pipeline drying and gassing,
- Construction of temporary infrastructure (roads, utility networks, etc.) and guards
- Construction of processing facilities for linear part.

During the gas pipeline exploitation the following operations will be carried out:

- Gas pipeline cleaning;
- Gas pipeline diagnostics;

- Preventive maintenance.

Construction of compressor stations includes:

- Construction of linear and areal facilities of industrial, auxiliary and offsite areas.
- Equipment installation,
- Utility networks construction,
- Temporary facilities (including camps) construction.

During the compressor stations exploitation the following operations will be carried out:

- Operation of gas transit, gas cleaning and gas cooling equipment,
- Corrective action, repair and diagnosis.

During objects' decommissioning the following operations will be carried out:

- Excavation works,
- Linear and areal facilities dismantling,
- Transport operations.

Based on tentative forecasts the composition of the transported gas will be as follows: methane (97.5%), ethane (0.88%), propane (0.14%), isobutane (0.015), C5+ (0.125%), nitrogen (0.93%), carbon dioxide (0.41%)

II) Information on the spatial and temporal boundaries of the proposed activity

Location

Boundaries of the projected pipeline on the territory of Serbia are intersection points of pipeline route and Serbia state boundaries with Bulgaria, Hungary, Croatia, Bosnia and Herzegovina (offshoot pipeline to Republic of Srpska).

The technological boundaries of the projected pipeline on the territory of Serbia are as follows:

1. On the border with Bulgaria a point with coordinates (WGS84): N 43 50'25.91505" E 22 22'30.44055".
2. On the border with Hungary a point with coordinates (WGS84): N 45.9294 E 18.9755.
3. On the border with Croatia a point with coordinates: 7th zone: 7354895.36, 5016702.96 (Gauss-Krueger projection), or the same point in the 6th zone: 6590229.17, 5015681.92. (Gauss-Krueger projection).

Compressor stations locations coordinates are as follows:

CS1 – km 147,6 route pipeline: N 44.3210 E 21.1776

CS2 – km 343,1 route pipeline: N 45.5241 E 19.7001

Description of the location

Below are given some salient environmental features along the pipeline route.

The territory along the pipeline route is generally characterized by favorable environmental conditions for construction. It is located within plains, lowlands with plain surface, covered by unconsolidated quaternary deposits. Low-altitude mountain massives are crossed by the pipeline route on the east of Serbia. Karst areas are limited.

Pipeline is to cross basically agricultural areas, rarely – forestry lands, and is to be over a distance from large SPAs. Construction costs and environmental impacts are significantly reduced due to the pipeline location within the corridors of recent transport (and gas transport) facilities. Nevertheless construction organization (construction of utilities networks, transport organization, etc.) is hampered due to low transport network development out of the bounds of main transport corridors.

Particularities of pipeline construction conditions on the east of Serbia (Zaechar) are as follows:

- crossing of Eastern Serbian mountains through a narrow section – Tchestobroditsa pike,
- permeable karst rocks within the construction area,
- SPAs and archeological monuments location in the vicinity of the pipeline route.

Central route section, basically located within Morava valley, is characterized by:

- high seismicity (highest frequency of seismic events on the territory of Serbia),
- fluvial processes development (Morava river bed alterations, gully erosion),
- ground water protection zones,
- large water bodies crossings,
- SPAs location in the vicinity of the pipeline route.

Northern route section (Voevodina region) is also characterized by specific features:

- location within lowlands - Danube river and its tributaries flood plains with high level of ground waters

(starting from 1 m from the surface), swamped areas, high water content in surface deposits, rapid river bed alliterations (ancones forming and alignment, slopes cutting, etc.), significant areas with high index of soil quality (black soils) and necessity of special land reclamation measures,

- developed irrigation system within flood plains,
- necessity of water bodies crossings (including large rivers and artificial channels),
- significant amount of Ramsar wetlands,
- necessity of utilities crossing in industrial areas (Novi Sad and others).

Rationale for the location of proposed activity

Pipeline route variant was determined according to requirements of SPAs regimes, current economic activities, and engineering geological conditions along the route.

While considering alternative route options following factors were taken into account:

- borders and regimes of areas of limited land use,
- borders and regimes of nature protected zones and areas of high importance (according to special planning),
- excising linear and areal facilities (including water courses, roads, etc.),
- necessity of providing minimal total pipeline length,
- opportunity of laying the pipeline within existing corridors of gas transport infrastructure.

On this basis the southern option of Serbian-Bulgarian state border crossing heap by Vrske Chuke was chosen. Among two options of pipeline route to Hungary (Horgos i Bachki Breg) the route through Bachki Breg (the western one) was considered more reasonable.

Time-frame of the proposed activity

Pipeline construction is planned for years 2013-2015. Further increasing the capacity of the pipeline in the next stages (in 2017 and 2025) will be the construction or upgrading of compressor stations. The designed gas pipeline exploitability period is 50 years.

III) Information on expected environmental impacts and proposed mitigation measures

Scope of Assessment

The EIA is basically focused on significant impacts of designed facilities, rather than on full range of all possible ecosystem effects. This approach aims to reach one of the EIA basic goals – to determine whether the planned activity is safe and acceptable for environment.

Issues of impacts on special protected areas (including natural SPAs) will be assessed in more detail.

Social aspects assessment is also a significant part of EIA.

Expected environmental impacts of the proposed activity

Major potential impact on **atmosphere** during the pipeline and CSs construction is pollutants emissions from vehicles and construction machinery. Other sources of pollutants include emissions from welding operations, implementation of mobile diesel power plants, loose materials pick-and-place, paint coating (on CSs), and other construction works.

CSs emissions (especially emissions from gas compressor units) are also significant during the implementation stage.

Major impacts on **waters** during pipeline and CSs construction include:

- water pollution as a result of nonpoint discharges of pollutants from temporary sites and construction area,
- natural surface flow disturbance,
- river beds and flood plains alterations of water bodies crossed,
- possible water pollution as a result of water use for construction purposes.

All impacts listed above are temporary. Impacts on large transboundary water courses including Danube river will be minimized due to technologies used: horizontal drilling, microtunneling. These technologies secure river bed surface stability and absence of water pollution.

Negative impacts during gas pipeline testing could include:

- water flow regime change due to water intake,
- possible fish damage due to water intake.

Reasonable water amount and short time of hydro-testing process provide “temporary effect” of the impact. Annual distribution and other long term parameters of water flow won't be effected. Following of safety instructions will minimize the risks.

Environmental impact on waters during pipeline operation period is insignificant. During implementation stage on CSs industrial sites waste waters generation is expected. Discharge of these waters

provides the major effect on water environment. Parameters of actual discharge should be regulated according to chemical test's results after the CSs start.

Basic types of impacts on **topography and land resources** during pipeline and CSs construction:

- temporary land allocation,
- landforms transformation (trench forming, sites organization, etc.),
- removal of fertile soil layer within the working width,
- activation of erosion and other hazardous processes,
- soil pollution.

Most of the impacts are temporary – after construction and land reclamation effected land plots will be retrieved.

Soil pollution could take place within certain territory as a result of:

- accidental spills of gasoline, oil and waters contaminated with oil products,
- dusting during construction works, equipment movement, surcharge loading of construction materials, etc.

Negative impacts of soil pollution could be more significant along the northern part of the pipeline route – within landscapes with high ground water levels. These natural conditions enable fast pollutants migration to water bodies and sources of water.

Major direct effect on **vegetation** – vegetation displacement within the construction corridor. Indirect impacts could include: blow-down possibility increase, activation of soil erosion, water-flooding, etc. These effects are consolidated within 0,5 km from pipeline axle and areal facilities' borders.

Wildlife damage during construction includes habitat transformation and physical environment changes due to:

- removal or transformation of natural vegetation,
- increase of access to territories, previously unavailable for use (hunting, fishing, etc.),
- noise pollution,
- chemical pollution,
- water environment changes due to water bodies' crossing (alteration of river beds and river banks, stream bank erosion, sediment concentration increase and redeposit of sediments) and intakes organization (for pipeline testing),

- construction of trenches and above curb barriers.

Wastes generation is a consequence of all stages of pipeline facilities construction and implementation (preliminary, construction process, pipeline testing, and implementation process). Total wastes volume, generated during construction of linear part of the pipeline is expected to be around 2 million tons.

Noise emission of linear pipeline facilities is insignificant. Basic noise impact is provided by CSs.

Major noise sources within the compressor stations are: gas treatment equipment, compressor sets, gas coolers. Levels of day and night time noise over a distance of 2-3 kilometers do not exceed permissible levels listed in WHO standards. Additional noise mitigation is not required.

Most of listed impacts for construction stage, including indirect ones are expected to provide local and temporary effects and won't cause significant damage for environment and any material losses. Impacts during implementation stage won't exceed acceptable rates.

Inputs

The following materials will be used during the gas pipeline construction:

- steel isolated and concrete weight coated pipes,
- concrete pipes (crossings),
- concrete pads and blocks,
- weightening substances (cast-iron, polymers, concrete),
- frames of transpierced folded sections,
- drill fluid (for horizontal directional drilling),
- material for trench back filling and surface leveling (ground, sand, gravel, etc.),
- water for hydro-testing and cleaning,
- liquid fuel,
- gas for "pre-commissioning",
- materials of CSs processing facilities.

Outputs

During the construction works there will be:

- pollutant emissions (CO, SO₂, NO_x, etc.) from transport power plants and welding mounting units;
- discharge of waters used in industrial processes (hydro testing and others) and for domestic, household and practical needs,

During the gas pipeline exploitation there will be a possibility of:

- atmospheric emission of natural gas in case of the accident occurrence (pipeline breakage) or its combustion products (CO₂, CO, NO_x, etc.),
- atmospheric emission from CSs equipment and their transport support units,
- discharge of waters used in industrial processes and for domestic, household and practical needs on CSs.

Transboundary impact

Negative transboundary impacts could be caused by:

- construction of linear pipeline facilities in vicinity of state boundaries crossing points (pollutants emissions, noise, etc.),
- compressor stations operation in case of long distance air transport of generated pollutants,
- generation of minute amount of wastes during pipeline cleaning on transboundary sections with the length of around 1 km,
- Danube river crossings.

Listed impacts are not considered significant and their negative effects occur within not more than 1-2 km from the site. Horizontal direct drilling and microtunneling methods will be applied for Danube river and other large water bodies' crossings. It would significantly reduce negative impacts on ecosystem of transboundary Danube river basin.

Climate change and ozone layer damage effects of proposed activity are negligible due to low level of pollutants emissions.

Proposed mitigation measures

In general the negative effects minimization of the projected activity is achieved by the consequent implementation and principles observance of the best environmental policy and global quality control system. This is provided by the implementation of the environmental management system corresponding to the international standard ISO 14001 as well as by the observance of the environmental principles and standards of the international financial and credit organizations ("Equator Principles", etc.). It's supposed to use the environmentally friendly technologies in the process of the gas pipeline designing, construction, exploitation and decommissioning. The mitigation measures of the possible negative impact are aimed to the following environmental components:

- atmospheric air – decrease of the fugitive emissions, cleaning of the emissions from organized sources, limitation of the used fuel types, etc.;
- aquatic environment – prevention of the fugitive discharges, usage of the modern technologies during the excavation and backfilling, observance of the water conservation zone usage conditions, organization of

the waste waters collection and treatment, etc.;

- bottom deposits, bottom and banks topography – minimization of trench dimensions and soil loss;
 - river biota – usage of the fish protection screens, minimal sediment spreading during the excavation and backfilling, etc.;
 - land ecosystems (soil cover, vegetation, wild animals) – erosion control, land reuse, soil remediation, natural vegetation restoration, fixation of the trench backfilling by rock placement, etc.
- It's also planned to carry out the measures aimed at:
- wastes collection, storage and disposal;
 - decrease of negative noise impact;
 - decrease of the production factors negative impact at the service personnel with regard to the requirements of sanitary norms.

The possible negative impacts at the cultural heritage objects and existing infrastructure will be excluded by the gas pipeline route optimization. Also the emergency action measures in case of the accident (for example, the pipeline rupture, hazardous substances leakage, fire, etc.) are developed.

The system of complex environmental monitoring will be used during the gas pipeline construction and exploitation. This will allow the constant improvement of the environmental activity aspects.

V) EIA documentation

Is the EIA documentation included in the notification? No

If it's not included or included partially, it's necessary to provide the description of the additional documentation and indicate the documentation entry date

It's planned to send the EIA report to the competent authorities of the countries affected by the project to take a decision in March 2013.

3. COMMUNICATION POINTS

Parties concerned, where the notification is to be sent

Bulgaria
Hungary
Croatia
Bosnia and Herzegovina

Focal points

Bodies responsible for EIA co-ordination
Notification sent in all listed organizations.

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