

DESIGN AND CONSTRUCTION OF GAS PIPELINE CONNECTING CHIREN UGS TO THE EXISTING GAS TRANSMISSION NETWORK OF BULGARTRANGAZ EAD IN THE AREA OF BUTAN VILLAGE

Information on assessing the need to carry out an Environmental Impact Assessment in
accordance with Appendix 2 to the Ordinance for the Conditions and Procedures for
Carrying out an Environmental Impact Assessment



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II. Investment Proposal Summary:

1. Characteristics of the Investment Proposal (IP):

a) size, area affected, parameters, scale, volume, productivity, scope, layout of the overall investment proposal;

The designed pipeline route shall start from the existing DN1200 pipeline entitled “Expansion of Bulgartransgaz EAD gas transmission infrastructure parallel to the Northern (main) gas pipeline to the Bulgarian-Serbian border”. The tapping into the existing pipeline is at km 414+945.86. The end point of the route of the new pipeline is the site of Chiren Underground Gas Storage (UGS). The route of the new gas pipeline is approximately 41.5 km in length with the following parameters and associated facilities:

- Gas pipeline maximum operating pressure (MOP) P=7.5 MPa;
- Gas pipeline design pressure (DP) P=7.875 MPa;
- Diameter of the transmission gas pipeline – DN700 – 28“;
- Operating temperature - minimum - 10°C; maximum +40°C;

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- Fibre optic cable line – the route of the fibre optic cable follows the route of the gas transmission pipeline. A fibre optic cable line has been designed, the route of which is located in the easement area of the gas pipeline, on the left side of the gas pipeline with direction from Chiren UGS to Piggings Facility (PF) Butan (the starting point of the gas pipeline), at a distance from 6 to 9 m from the gas pipeline axis: The fibre optic cable connection points are cable manholes with numbers KIII-2K-653-1 and KIII-2K-653-2 from the built fibre optic line to site: "Expansion of Bulgartransgaz EAD gas transmission infrastructure parallel to the Northern (main) gas pipeline to the Bulgarian-Serbian border". The end point of the fibre optic cable line is next to the property boundary of the new site of Chiren UGS - above-ground part.
- Cathodic Protection Stations (CPSs) - the design envisages the use of active protection by means of gas pipeline cathodic polarization. Active electrochemical protection is carried out using the cathode - anode system, connected to a direct current power supply. Considering the length of the gas pipeline route of approximately 41.5 km, 2 CPs are envisaged in the design – one on the site of LVA Manastirishte and one at the end of the section at Chiren UGS. The approved locations and dimensions of the anode grounding devices (AGDs) from the approved DSP-PP for site "High pressure gas transmission pipelines with AGRS from Chiren UGS to the town of Kozloduy and the town of Oryahovo shall remain, which in turn shall be amended in order to use it for this investment intention.
- Safety valve - a safety valve is envisaged at the starting point of the new gas pipeline at piquet 414+945.86 (along the route of site Expansion of Bulgartransgaz EAD gas transmission system in parallel to the Northern (main) gas pipeline to the Bulgarian-Serbian border"). The dimensions of the safety valve are 5x5 m south 2 m from the axis of the existing DN1200 gas pipeline within its easement in property with identifier 18505.140.1 in the land of Glozhene village, Kozloduy Municipality.
- Piggings Facility (PF) Butan - the launch/receive site of PF Butan is located in the land of Butan village, Kozloduy Municipality. PF Butan site borders a municipal road (Botev road), which reaches south to the village of. Butan The site has an area of 2.146 decares, falls within the property with identifier 07116.76.4 (or the adjacent ПИ 07116.76.5 depending on the possibilities for rights in rem settlement) in the land of Butan village, Kozloduy Municipality with road access via a municipal road (Botev road), which reaches south to the Butan village. The power supply is provided from the existing 20 kV line owned by Bulgartransgaz EAD through the route of a new electric cable along the route of the fibre optic cable in the easement of the gas pipeline with a length of 130.04 m. Distribution switchgear is envisaged at the site of PF Butan.
- Piggings Facility (PF) Chiren 3 - the launch/receive site of PF Chiren 3 is located in the land of Chiren village, Vratsa Municipality, Vratsa Region, immediately next to PF Chiren 1/Vratsa 1 for pipeline branch Vratsa 1, including road access to it. A gas pipeline connection (gathering) to the newly designed site for "Expansion of Chiren UGS capacity - above-ground part" has also been designed. The end point for connection of the gathering is envisaged immediately next to the western fence of the new technological site for project "Expansion of Chiren UGS capacity - above-ground part" - connection point with coordinates 44803173.545 m, 345166.283 m (in CS BGS 2005). Power supply of PF Chiren 3 will be provided at a low voltage level from the existing power supply of Chiren UGS with a newly designed route from the northwest fence of Chiren UGS in the active easement of gas pipeline Vratsa 1 and in the easement of the design gas pipeline to the site of PF Chiren 3 with a length of 232.95 m. The route of the low-voltage electric cable for powering the anode grounding devices (AGD) to PF Chiren 3 starts from the northwest fence of Chiren UGS in the existing easement of gas pipeline Vratsa 1 and in the easement of the design gas pipeline to piquet 40+800, bends to the northwest along field road at a

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

distance of about 300 m then turns to the northeast along a field road, and AGD are located at a distance of 140 m. Total length of the AGD cable is 810.46 m.

- Line Valve Assembly (LVA) Manastirishte - a site of the LVA is envisaged in the land of Manastirishte village, Hayredin Municipality, Vratsa Region, with an area of 155 sq.m. located in a property, identifier 47010.124.36. The power supply to the site will be approximately 3.2 km long and the low voltage power cable to supply the anode grounding devices (AGDs) will be approximately 328 m long.

Detailed information on the location of the sites is provided in Section II.2.

The coordinates of the defining points of the facilities are given as an Appendix to this information in the 2005 Cadastral Coordinate System, the 1970 Coordinate System and WGS 84. Coordinate registers for the entire investment proposal are enclosed (Appendix 1).

Overall layout of the investment proposal:

The gas pipeline construction to Chiren UGS mainly aims to create a technical possibility for natural gas supply via a new route to the gas storage facility in Chiren village, and also to make withdraws from the gas storage facility if necessary. Currently, natural gas is supplied to/from Chiren UGS only via the Vratsa 1 and Vratsa 2 pipelines, part of the existing Bulgartransgaz EAD gas transmission network. Following the implementation of the new route of site "Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village", the natural gas security of supply to Chiren UGS will increase as the natural gas will be transported via yet another route. The envisaged technological interconnection of the new pipeline with the existing gas transmission system in the area of the Chiren UGS will provide for different options for technological modes of the network, including the provision of alternative routes along the transmission routes if needed.

(b) interconnection and cumulation with other existing and/or approved investment proposals;

The investment proposal "Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village" is in interconnection with another investment proposal of Bulgartransgaz EAD entitled "High Pressure Gas Transmission Pipelines with AGRS from Chiren UGS to the town of Kozloduy and the town of Oryahovo". Regarding investment proposal "High-Pressure Gas Transmission Pipelines with AGRS from Chiren UGS to the town of Kozloduy and the town of Oryahovo", RIEW Vratsa issued Decision No. BP-29-IIP/2011 of 12 August 2011 on assessing the need of carrying out an Environmental Impact Assessment. The decision stipulates that no EIA shall be carried out. Decision No. BP-29-IIP/2011 on assessing the need to carry out an Environmental Impact Assessment (with a validity period of 5 years) has expired, for which we have been informed by the Director of the RIEW Vratsa by letter No. OBOC-EO-313/19.08.2022.

Regarding the gas pipelines to Kozloduy and Oryahovo, a Detailed Spatial Plan - Parcelling Plan (DSP-PP) - final draft phase was approved by Order No. ПД-02-15-51/01.04.2015 of the Minister of Regional Development and Public Works. Circumstances requiring temporary suspension of the project have been identified since the order approving the DSP-PP for the site became effective in 2015.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

As the approved DSP has entered into force and has no expiry date, in view of the fact that the new investment proposal of Bulgartransgaz EAD - "Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village" will connect Kozloduy Municipality with Chiren UGS, the company will use the approved DSP in order to shorten the implementation time of the gas pipeline. An amendment to the approved DSP will be prepared in order to adapt it to the parameters of the new investment intention - change in the diameter of the pipeline, change in the technological sites, size of the easement zone, etc.

The main permitting regimes that relate to the realisation of the investment proposal are associated with the preparation of a draft amending the DSP-PP drafted and approved in 2015 and the issuance of a building permit in line with the effective legislation, namely the Spatial Development Act and the by-laws thereto.

c) use of natural resources during construction and exploitation of subsoil, soil, water and biodiversity;

During implementation of the investment proposal, the main natural resource that will be used is the land through which the gas pipeline will pass. Considering that the affected areas will be restored through reclamation, it can be concluded that the use of this resource is balanced.

For the activities related to implementation of the investment proposal, construction materials will be used, including natural resources such as sand, gravel and water. Construction aggregate will be used in the composition of concrete mixtures (if ready-mix concrete is not used) for the construction of the sites to the gas pipeline facilities, concrete fire resistant belt, foundations as well as the facilities along the route for crossing other infrastructure and water bodies, reinforcement of the earth base and slopes (if such a need is established at the design stage).

During actual implementation of the IP, bottled water will be provided for drinking needs of the construction workers. Water will also be used for preparation of the concrete mixtures (if no ready-mixed concrete is used) and other construction mortars, sprinkling of temporary roads to prevent dust emissions into the air (if necessary). This water will be supplied by tank vehicles.

Following gas pipeline construction, a hydraulic test will be carried out for each sub-site. Water will be necessary for the hydraulic test of the gas pipeline, which quantity will be determined in detail in the investment design.

In case of need for electricity, water and means of communication, for temporary construction bases (if the CIW contractor envisages such), they will be provided by the public networks.

Natural resources use is not envisaged during the operating period. The main technological processes are not related to water consumption. During operation, electric power will be used to operate the valves in valve assemblies, PFs, Control and Instrumentation, as well as for cathodic protection. The facilities will be connected to the power distribution network through the installation of power cables.

The types of earthworks for the construction of the pipeline include excavation of topsoil, trench hand excavation to expose underground utilities, excavation of terraces, trench backfill and backfill for terrace restoration, and return of topsoil (technical reclamation). Excavator is envisaged to excavate the soils for the trench.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

An excavator and a hydraulic hammer are envisaged to break and excavate the rock mass in the areas with rocky soils. **No use of explosives is envisaged.** The generated surplus land masses will be used for backfilling, making vertical levelling - for levelling the site upon completion of the construction works, and the rest will be deposited at municipal landfills for land masses.

The use of the subsoil and biodiversity as a resource in the construction and operation of the investment proposal is not envisaged.

d) waste generation - types, quantities and treatment, and effluent;

Waste generation

According to the regulatory requirements, waste generated during the construction and operation phases is to be handed over to organisations holding permits or registration under the Waste Management Act (WMA) for waste treatment activities.

During construction

During excavation works, the humus layer will be removed and stored within the construction strip. Following the completion of the construction, it will be used for reclamation of the disturbed terrains.

During construction, domestic, industrial and construction waste will be generated. Maintenance of construction equipment and machinery, when necessary, is planned to be carried out in garages, not on the territory of the construction site.

Pursuant to Ordinance No. 2 of 23 July 2014 on waste classification (Promulgated, SG No. 66 of 8 August 2014) the following types of waste are expected, specified below:

- Mixed household waste - code 20 03 01. Waste generated by construction workers will be stored in specialized containers on site and periodically transported by a specialized company to a household waste landfill.

- Paper and cardboard packaging - code 15 01 01. The generated packages of construction materials and equipment will be stored in containers for temporary storage at the construction strip and subsequently transported for further treatment by companies holding the required registration documents pursuant to the procedure of the WMA.

- Plastic packaging - code 15 01 02. The generated packages of construction materials and equipment will be stored in containers for temporary storage at the construction strip and subsequently transported for further treatment by companies holding the required registration documents pursuant to the procedure of the WMA.

- Metallic packaging - code 15 01 04 - the generated packaging of construction materials and equipment will be stored in containers for temporary storage at the construction strip and subsequently transported for further treatment by companies holding the required registration documents according to the procedure of the WMA.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- Metallic packaging - code 15 01 06 - the generated packaging of construction materials and equipment will be stored in containers for temporary storage at the construction strip and subsequently transported for further treatment by companies holding the required registration documents according to the procedure of the WMA.

- Non-ferrous metal filings and turnings code 12 01 13 - the generated packaging of construction materials and equipment will be stored in containers for temporary storage at the construction strip and subsequently transported for further treatment by companies holding the required registration documents according to the procedure of the WMA.

- Iron and steel code 17 04 05 - In case this waste is generated, it will be transported by companies holding the required registration documents issued under the WMA for subsequent treatment.

- Soil and stones other than those mentioned in 17 05 03 - code 17 05 04. The generated surplus land masses will be used for back-filling, making vertical levelling - for levelling the site upon completion of construction works, and the rest will be deposited at municipal landfills for land masses.

Specific waste quantities will be determined at the Construction Waste Management Plan stage.

During operation

The following wastes may be generated during the operation of the investment proposal:

- Waste containing oil - code 16 07 08* - the generated waste will be transported for further treatment by companies holding the required registration documents issued under the WMA.

The specific quantity of waste will be determined at the stage of concluding a contract for its transportation for subsequent treatment with a company holding the required registration documents issued under the WMA, as its quantity is impossible to exceed 22m³ each (the capacity of the two tanks for its storage).

Effluent (waste water):

During construction

With regard to domestic effluent - there is no provision for a construction workers' camp and workers will be transported to and from the active work area each day. They will be provided with chemical toilets on site within the construction strip.

During actual gas pipeline, no water will be needed for industrial purposes. Very small quantities of water may only need to be used if the concrete mixes for the fire resistant belt at the technological sites or foundations are prepared on site, but it is likely that ready-mixed concrete supplied by nearby concrete plants will be used.

Water from the Chiren III Reservoir will be used for the hydraulic test under permit No. 11490001/14.06.2007, as amended and extended by Decision No. Bp-1/21.06.2022, which allows the

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

use of water for cooling, firefighting and hydrotest purposes. Water will be returned to the reservoir after filtration and sedimentation and in accordance with the discharge permit issued.

During operation

The main and auxiliary technological processes in gas pipeline operation are not sources of wastewater generation.

d) pollution and adverse impact; environmental discomfort;

During the construction of the investment proposal and its operation, there are no conditions for significant pollution, adverse impacts and environmental discomfort. The investment proposal is located outside urban areas.

Information on the expected impact on environmental components and human health is provided in Section IV herein.

During construction

No discomfort or significant adverse impact on the environment and people are expected to be caused, as:

- the expected pollution with dust and other harmful substances from transport and construction machinery will be insignificant, in the area of the construction strip and access roads, it will be of short duration, temporary and reversible;
- the generated waste will only be temporarily stored on site until its removal and subsequent treatment, and its impact is expected to be short-term, temporary, reversible and insignificant;
- the noise generated by the transport and construction works to be executed in the area of the construction strip and access roads is expected to be insignificant, short-term, temporary and reversible and is not expected to have a harmful impact.

During construction and installation works, air pollution will be caused by:

- Transport activities - heavy machinery will be used to transport pipes, equipment, materials and people;
- Excavation and backfilling - heavy machinery will be used to carry out the excavation and installation of the pipes;
- Diesel generators will be used to provide the electricity required for the welding works along the route.

During construction, as a result of excavation activities and transport of excavated soil or humus transport, there would be an increase in atmospheric dust and re-emission of aerosols from the roads used. This will result in some short-term impacts within the site area and on areas adjacent to the pipeline route. Dust emissions are expected to be the main pollutant during construction activities.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

Emissions of harmful substances from the machinery and transport vehicles used will depend mainly on the age and type of machinery, and its maintenance and carrying capacity.

In order to prevent the emission of dust into the air during the period of implementation of the investment proposal, measures are envisaged, namely - site water sprinkling during excavation works, dry periods and when necessary.

During operation

No discomfort or significant adverse impact on the environment and people are expected to occur, as:

- There would be minor, occasional generation of dust and exhaust from the passing vehicles (light vehicles) in the area of the easement and access roads. Impact would be minor, short-term, temporary, and reversible and no discomfort is expected to occur or to result in pollution and adverse impact;
- Insignificant amount of waste will be generated, which will be stored in the condensate collector and transported for subsequent treatment by an appropriate professional company, therefore the impact is also expected to be short term, reversible and insignificant and no discomfort or adverse impact on the environment and people is expected to occur;
- Gas transport technology includes no sources of physical factors;
- No wastewater will be generated during operation.

In view of the above, no pollution, adverse impact or discomfort to the environment is expected to be caused during the construction and operation of the investment proposal.

Considering the main activity– natural gas transmission through a closed pipeline system, no emissions of harmful substances from technological processes are expected during IP operation.

f) risk of major accidents and/or disasters associated with the investment proposal;

On the basis of Article 104 of the Environmental Protection Act, measures to prevent major accidents and limit the consequences thereof for human health, property and the environment shall be taken into account in terms of:

- spatial planning of the territory, and;
- civil protection and environmental protection planning.

In order to implement the investment proposal "Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village" a detailed spatial plan is to be amended, the following enterprises classified with high and/or low risk potential located in the vicinity of the gas pipeline have been considered:

According to the Environmental Assessment Report of the General Spatial Plan of Vratsa Municipality, there are 3 enterprises classified with a high risk potential and 1 enterprise classified with a low risk potential on the territory of the municipality.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

Enterprises classified with a high risk potential:

- Bulgartransgaz EAD, Sofia - Chiren UGS, Chiren village;
- Petroleum Base Vratsa, Vratsa with operator DMV, Ruse.
- Kamibo EOOD, Sofia - Kamibo EOOD - TP Chimenergo, Vratsa /Eastern Industrial Zone/ - **the enterprise is currently decommissioned and is not considered in detail herein.**

Enterprises classified with a low risk potential:

- Nikas OOD, Sofia - Storage and production base for explosive materials, Lilyache village - reconstruction of a workshop for production of ammonites into a tank farm for chemical substances.

In the General Spatial Plan of Vratsa Municipality there are no data on spatial zones/territories for safe distances within the meaning of Article 104 of the Environmental Protection Act to the enterprises. Emergency plans of the enterprises with high and low risk potential are published on the website of Vratsa Municipality (<https://www.vratsa.bg/bg/1612963704.html>), and the accident scenarios are discussed therein and the respective impact zones are indicated as follows:

- 1. Bulgartransgaz EAD, Sofia - Chiren UGS, Chiren village** Chiren Underground Gas Storage Facility (Chiren UGS). It is located in North-Western Bulgaria at approximately 20 km from the town of Vratsa and at approximately 150 km north-east of Sofia. The gas storage facility was established on the basis of a depleted gas condensate field (1965- 1974) and has been operated by Bulgartransgaz EAD since 1974 - until now.

Relevant to the route of the new gas pipeline according to the amendment of the approved DSP are the thermal impact zones of a vapour fireball from a methanol tank (197.5t) at the LZT storage facility of Chiren UGS.

Three thermal impact zones have been identified:

Zone One - 463m (10.0kW/m²) - potentially lethal when staying for 60s;

Zone Two - 670m (5.0kW/m²) - second-degree burns when staying for 60s;

Zone Three - 1.1km (2.0kW/m²) - feeling pain when staying for 60s;

The duration of the fireball will be 19s.

- 2. Petroleum Base Vratsa, Vratsa with operator DMV Ruse** - the base is located in Vratsa, Eastern Industrial Zone, 9 Hristo Smirnenski str, Regulated Land Plot 12259.1021.101 according to Vratsa Cadastral Map. Diesel fuel; gas oil; gasoline A95H and A98 H; kerosene; biodiesel; fuel oil is stored on the territory of the enterprise. The following accident scenarios have been considered: gasoline storage tank leak and rupture; tank truck or rail tank rupture and fire during loading and unloading activities; hose rupture and rupture of a rail tank with gasoline on a railroad trestle; fire in a gasoline storage tank; leakage from a pipeline during gasoline transportation while filling a tank; leak and rupture of a diesel or gas oil storage tank. The following emergency areas are identified at the site for the listed accidents:

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- Zone One - High Lethal Zone - 138m
- Zone Two - Severe Damage Zone - 276m
- Zone Three - Special Attention zone - 380m

3. Nikas OOD, Sofia - Storage and production base for explosive materials, Lilyache village - reconstruction of a workshop for production of ammonites into a tank farm for chemical substances. The site is located in an open plain-hilly semi-mountainous area with an average height above sea level of 235 m. A separate existing asphalt road leads to the site. Accidents that may occur are mainly fire and/or explosion related. Areas have been outlined to assess the consequences of major accidents:

- Zone One - Full Destruction Zone - 138m
- Zone Two - Heavy Destruction Zone - 183.7
- Zone Three - Minor Destruction Zone - 612.4m

Kozloduy NPP, classified as an enterprise with a high risk potential, is located on the territory of Kozloduy Municipality. The website of Kozloduy Municipality has no data on the approved General Spatial Plan of the municipality.

According to the Kozloduy NPP Emergency Plan, the emergency planning areas have been defined in accordance with the Regulation on Emergency Planning and Emergency Preparedness in case of Nuclear and Radiological Emergencies. The zones are defined on the basis of the analyses carried out of possible over-design and severe accidents of the VVER-1000 (B-320) units and of the radiation consequences of the accident, and in accordance with the dose criteria for making decisions to protect the personnel and the population.

The emergency planning areas of Kozloduy NPP are as follows:

- Emergency planning area at the Kozloduy NPP site (protected area), which has restricted and controlled access and is under the direct control of the operator (licensee);
- Kozloduy NPP off-site emergency planning area, which includes: (a) a Preventive Protective Measures Zone around Kozloduy NPP with a notional radius of 2 km; (b) an Urgent Protective Measures Zone around Kozloduy NPP with a notional radius of 30 km.

According to the Environmental Assessment Report of the Draft Specialized Detailed Spatial Plan (SDSP) of the Preventive Protective Measures Zone (PPMZ) around the Kozloduy NPP, the essence of the SDSP of the PPMZ and its spatial plans is:

Defining the boundaries of PPMZ

The meteorological data obtained from the automated meteorological monitoring system in the Kozloduy NPP site area were used. The data are input for model forecasts and estimates of dose exposure to the population in a 30 km area due to gaseous aerosol emissions from the NPP. Data for the period 2001-2008 (considering that the assessment was performed in 2009) and microclimatic data were used. Estimates of maximum dose values obtained range from 3.75E-7 Sv to 3.09E-9 Sv by year, respectively.

The results of the model and mathematical evaluations show that under normal operation the additional dose load to the population in the 30 km operating area of Kozloduy NPP is

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

negligible. On the basis of the estimates made and the results obtained for the individual doses under normal operation of Kozloduy NPP and under design accidents, it is established that for the 2 km radius of PPMZ around the nuclear facility the criteria for the PPMZ limits are met. As a result, a circle centred between Units 5 and 6 and with a radius of 2 km (subject to the SDSP) has been defined for the PPMZ.

PPMZ has been defined as a circle with a radius of 2 km and a centre between the vent pipes of Units 5 and 6, according to the methodology approved by the Nuclear Regulatory Agency (NRA). **SDSP shall regulate the rules and standards for planning and development of the separate territory of the 2 km zone with special status. It establishes a regime of preventive spatial protection for the territories, thus preserving their actual use without deteriorating their qualities.**

When coordinating the DSP of site: High-Pressure Gas Transmission Pipelines with AGRS from Chiren UGS to the town of Kozloduy and the town of Oryahovo", Bulgartransgaz EAD asked Kozloduy NPP to provide baseline information on the area for preventive measures in order to comply with the required distances from Kozloduy NPP. Kozloduy NPP provide the coordinates of the Preventive Measures Zone centre and radius by letter Ref. No. 8289/05.12.2012. DSP where the facilities do not fall within the preventive measures zone was coordinated by Kozloduy NPP via letter No. 1428/19.02.2013.

The above information is provided on a map material (kmz file) indicating the pipeline route and the location of the enterprises with high and low risk potential (Appendix 2).

The route of the new gas pipeline within the scope of the DSP amendment will fall within the zone one of thermal impact from the vapor fireball from the methanol tank (197.5t) at the LZT storage facility at Chiren UGS. The pipeline will be constructed underground, to a minimum depth of 0.8m from the top of the pipe to the ground surface. Simultaneously, the maximum duration of the event (fireball) is 19s. Under these circumstances - depth of pipe to ground surface and time of impact, there would be no thermal energy to impact the mechanical properties of the pipeline and cause an accident compromising the integrity/physical and chemical properties of the gas being transported.

In addition to the above, no adverse impacts related to the passage through safety zones of other enterprises with high and low risk potential are expected from the implementation of the amendments to the DSP, as the route of site "Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village" falls only within the areas of the LZT storage facility at the Chiren UGS, but as the impact is only thermal in the case of a vapour fireball from a methanol tank, it will not affect the pipeline, which is laid underground.

Risk of accidents and incidents during construction

The type, nature and scope of the construction works do not create conditions for occurrence of major accidents and/or disasters, therefore it is considered that there is no risk of occurrence of such events directly related to the IP implementation.

There are risks of minor incidents directly related to the type of activities carried out (transport, excavation, construction, assembly, welding, etc.).

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

The main risks for construction workers are related to the possibility of occupational accidents and traumatism due to violation of safety requirements, violation of the rules for working with machinery and equipment and damage to machinery, equipment, heavy transport, etc. There are also risks to the health of construction workers from the impact of specific factors related to the type of activity being carried out: dust; noise, vibration; unfavourable microclimate when working outdoors; welding aerosols; exhaust fumes from transport and construction machinery.

Technical gases - oxygen, argon, carbon dioxide in small, transportable containers will be used during the construction of the facilities within the scope of the IP. As a result of their use, occupational accidents may occur, at most, with those working with these gases within the work zone, but not impact zones outside it.

During operation, accidents with potential impacts on human health and the environment could result from unplanned/uncontrolled release of natural gas from a facility within the IP.

Natural gas will be available at all transmission facilities within the scope of the IP, with the following main operating parameters:

- Length of the route - about 41.5 km;
- Gas pipeline maximum operating pressure (MOP) $P=7.5$ MPa;
- Gas pipeline design pressure (DP) $P=7.875$ MPa;
- Diameter of the gas transmission pipeline – DN700($\varnothing 71$ mm; 28“);
- Operating temperature - minimum - 10°C ; maximum $+40^{\circ}\text{C}$;

The natural gas is listed in Appendix 3, Part 2, item 18 of the Environmental Protection Act (EPA). However, in accordance with the exemptions under Article 103 para. 8 item 4 of the EPA, the facilities within the scope of the DSP amendment are not subject to control under the requirements of Chapter Seven, Section One of the EPA. The exemption is confirmed in a letter No. OBOC-17/16.12.2022 of the Ministry of Environment and Water.

Potential emergency scenarios with impacts on human health and the environment:

- Leak without subsequent ignition;
- Leak with subsequent ignition;
- Flash fire;
- Deflagration fire;
- Explosion in a cloud;
- Jet fire

A Natural Gas Safety Data Sheet is enclosed herein.

The operation will generate hazardous waste code 16 07 08*. It will be stored in two underground tanks at the respective treatment facilities with a maximum capacity of 22m^3 each. In accordance with the Guidance of the Ministry of the Environment, Agriculture, Conservation and Consumer Protection, State of North Rhine-Westphalia (MULNV NRW) on the classification of waste' within the scope of Chapter Seven, Section One of the EPA, Annex 1, Table 3, the waste is classified in accident significance category "3" (column 2) and with hazard category E2 (column 3) - "Hazardous to the aquatic environment in chronic hazard category, Category 2" according to Annex 3, Part I of the EPA. A

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

potential emergency scenario with the waste is a possible leak if the integrity of the tank is compromised.

The potential causes of a natural gas/waste accident in equipment/facilities within the scope of the IP may be external, operational and natural as follows:

Equipment integrity failure (breach) or uncontrolled leak with/without subsequent ignition may result from:

- Shock wave (e.g. explosion at another work site or vehicle at another enterprise or at a vehicle located on a section of the road infrastructure) - external or operational;
- Mechanical energy (e.g. impact from a flying or moving object/shrapnel, impact from vehicle/other mobile equipment, impact resulting from ground/sub-surface movement, impact from water/land mass, etc.) - external, natural or operational;
- Thermal energy (e.g., ongoing fire whether natural or from other substance leaking into adjacent facility/spark, flash, etc.) - external, natural or operational;
- Technical defects (in the material of which the facility is made; flanges; valves; in couplings; other ancillary/accompanying assemblies to the facility (e.g., poor quality material/ageing of equipment/fixtures/seals, poor mechanical workmanship (bumps, bends), failure/deviation from operating parameters of process/measuring equipment) - external or operational;
- Human error (e.g. left open/poorly connected elements/valves/other fittings) - operational;

In this regard, measures are foreseen to ensure the safe operation of the pipeline, to prevent and respond to incidents and emergencies that are related to:

- Technological solutions;
- Selection of appropriate construction solutions;
- Anti-corrosion protection solutions;
- Automatic regulation, interlocking, signalling and other means to ensure safety;
- Solutions aimed at ensuring explosion and fire safety, etc.

Prior to the commencement of operation, an emergency plan (rescue and emergency recovery plan) for the pipeline will be developed, the purpose of which is to establish a disaster and accident fighting organization and technical support for rescue and emergency recovery activities. This plan will include measures for natural disasters such as earthquakes, floods, snowfalls, etc., as well as industrial accidents related to natural gas emissions.

g) risks to human health due to adverse effects on environmental factors within the meaning of § 1(12) of the Supplementary Provisions of the Health Act.

Environmental factors within the meaning of § 1(12) of the Supplementary Provisions of the Health Act are:

- drinking water and water for household purposes;

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- water for bathing;
- mineral water for drinking or use for preventive, therapeutic or sanitary purposes;
- noise and vibrations in housing and public buildings and urban areas;
- ionizing radiation in housing, industrial and public buildings;
- non-ionizing radiation in housing, industrial and community buildings and urbanised territories;
- chemical factors and biological agents in public use facilities;
- resort resources;
- air.

IP implementation and operation do not adversely affect any of the factors of the living environment listed above and accordingly do not pose any risks to human health.

The nearest objects subject to health protection to the pipeline route are the residential buildings of the villages Devene and Kriva Bara. No sites/areas subject to health protection and such with specific sanitary status are located in the area of possible impacts.

No impacts on workers' health are expected during construction. The presence of personnel during the operation will be temporary and short-term - no emissions of substances/energy, respectively factors affecting human health during the operation, are practically expected during the periodic walkovers along the route and the technological sites.

2. Site location including area required for temporary activities during construction.

The investment proposal falls on the territory of Vratsa Region in the following lands:

- Kozloduy Municipality - Glozhene village, Butan village and Kriva Bara village;
- Mizia Municipality - Sofronievo village;
- Hayredin Municipality - Manastirishte village, Rogozen village, Botevo village, Barzina village, Hayredin village;
- Borovan Municipality - Malorad village;
- Krivodol Municipality - Osen village;
- Vratsa Municipality - Chiren village, Devene village, Tri Kladentsi village;

The location of the technological sites for servicing the gas pipeline and the areas affected by them is as follows:

- **Safety valve** with an area of 0.025 decares in Property Plot (PP)18505.140.1 in the land of Glozhene village, Kozloduy Municipality when tapping the gas pipeline with the existing DN1200 gas pipeline 2m south of its axis within its easement;
- **Launch/Receive PF Butan** with an area of 2.146 decares, in PP 07116.76.4 (or the adjacent PP 07116.76.5 depending on the possibilities for rights in rem settlement) in the land of Butan village, Kozloduy Municipality with road access ensured via a municipal road (Botev road), which reaches south to the Butan village.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- **LVA Manastirishte** with an area of 0.155 decares in PP 47010.124.36 in the land of Manastirishte village, Hayredin, Municipality, Vratsa Region;
- **Launch/receive PF Chiren 3** with an area of 1.194 decares and an access road to it with an area of 0.223 decares in PP 81400.38.67 in the land of Chiren village, Vratsa Municipality, Vratsa Region.

For the respective parts of the properties necessary for the construction of the above-mentioned technological sites, rights in rem (ownership or construction rights) will be acquired from Bulgartransgaz EAD. No additional area is needed for temporary activities during construction other than that purchased from Bulgartransgaz EAD. The areas for the safety valve and LVA Manastirishte are not subject to change of the designation of agricultural land for non-agricultural purposes pursuant to Article 17a, paragraph 2 of the Agricultural Land Protection Act and an easement right is established for them as part of the linear energy facility.

The total affected area of the route and the gas pipeline easement is 1245,525 decares, and of the electric cables and anode grounding devices– 12.340 decares. The working strip is envisaged to coincide with the easement area of the gas pipeline; therefore, no additional area will be required for temporary activities during construction works.

During operation, the transmission pipeline and its facilities impose the following restrictions on the areas through which it passes:

- Preventive Spatial-Development Protection Area (within the meaning of Article 10 of the Spatial Development Act (SDA) - an area 200 m wide on both sides of the transmission pipeline and its facilities. In the Preventive Spatial-Development Protection Area, the actual use of the properties shall be preserved while limiting the construction of residential buildings and other objects at the expense of increasing the class of the gas pipeline, respectively the thickness of the gas pipeline, in accordance with Article 13 and Article 14 of the Ordinance on the structure and safe operation of the transmission and distribution gas pipelines, natural gas facilities, installations and equipment (Ordinance under Article 200, para. 1 of the Energy Act). According to Annex 1 to Article 13, para. 4 of the above Ordinance, the minimum distance of single buildings to the gas pipeline and its facilities is 50 m.
- Easement area intended for the construction, operation and repair of gas pipelines. The conditions and procedure for exercising easement rights established for the natural gas storage, transmission, distribution and conversion facilities are specified in Section III, Article 19, Article 20 and Article 21 of Ordinance No 16 of 9 June 2004 on easements for energy facilities. According to Annex No 3 to Article 7, para. 1(1) of this Ordinance, the width of the pipeline easement zone in agricultural areas is 30 m symmetrically spaced 15 m on either side of the pipe axis. In order to preserve as far as possible, the accepted and approved easement in some of the sections that were subject to amendment, the route is located asymmetrically to the approved easement.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

3. Description of main processes (according to prospectus data), capacity, including of the facilities where hazardous substances from Appendix No.3 to the Environmental Protection Act (EPA) are expected to be present

The main technological process that is implemented through the investment proposal is the transmission of natural gas.

During the construction works and the operation, no hazardous substances are expected to be present and/or to be used.

Volume and capacity

The construction site is “First category” in line with Art. 137, para. 1, item 1, “b” of the Spatial Development Act (SDA) and Art. 2, para. 2, item 3 of Ordinance № 1 of 2003 on the nomenclature of types of constructions.

Gas pipeline technical parameters:

- Length of the route - about 41,5 km;
- Gas pipeline maximum operating pressure (MOP) $P=7,5$ MPa;
- Gas pipeline design pressure (DP) $P=7,875$ MPa;
- Diameter of the transmission gas pipeline – DN700 – 28“;
- Operating temperature - minimum - 10°C ; maximum $+40^{\circ}\text{C}$;
- Easement in accordance with Ordinance No.16/2004 on easements of energy sites - strips with a width of 15 m on both sides of the gas pipeline axis;
- Natural gas indicative composition:

Name	Value
Contents of the component, % mol.	
Nitrogen (N_2)	0.62
Carbon dioxide (CO_2)	0.18
Methane (CH_4)	95.5
Ethane (C_2H_6)	2.53
Propane (C_3H_8)	0.81
Isobutane ($i\text{-C}_4\text{H}_{10}$)	0.12
n-butane ($n\text{-C}_4\text{H}_{10}$)	0.09
Iso-pentane ($i\text{-C}_5\text{H}_{12}$)	0.12
n-Pentane ($n\text{-C}_5\text{H}_{12}$)	0.02
Hexane (C_6H_{14})	0.01
<i>Total</i>	100.00

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

4. A scheme of a new or change of an existing road infrastructure.

Road access are envisaged for the service of the newly built pigging facilities (PF) Butan and Chiren 3. Access roads are used for the service of the fire fighting needs as well. The construction of road connections to the sites will not result in changes to the existing road infrastructure.

Access to the sites are as follows:

- Road connection to the site of PF Chiren 3 - the road access to PF Chiren 3 is envisaged to be a continuation of the road access to PF Chiren 1/Vratsa 1 (provided for under another project), that leads to municipal road VRC1036 (Deven - Chiren).
- PF Butan – the PF site borders the municipal road (Botev pat) and no further activities are called for in terms of buikding a new road accessing it.

Situation at the sites of PF Chiren 3 with indicated road access and PF Butan are given in annex to the information (Appendix 3).

The access to the easement zone will be executed starting from a street or transport network and dirty roads as well.

5. Programme of activities including construction, operation and closure, restoration and post-use phases.

A - Construction works

The main construction activities include: humus removal and its temporary deposition within the boundaries of the construction strip; excavation works for digging trenches for laying the gas pipeline and the technological communication connection (TCC - optic cable) and the site facilities; backfill of trenches; recultivation of the construction strip; complex construction works when crossing water bodies, gullies, canals, railway lines, roads; installation works - mainly welding works on the gas pipeline; gas pipeline corrosion protection; installation of equipment of the facilities; strength and tightness tests of the gas pipeline according to BDS EN 1594.

The construction works are described below in brief (construction methods and technology):

- Preparation of the work section

Preparation of the work section involves the clearing the terrain, elimination of grass, grubbing-up of trees, where necessary, etc.

The specific features of the area in terms of the environment and the population will also be accounted for and appropriate actions will be taken.

- Preparation of the terrain and removal of the surface soil layer (humus)

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

In accordance with regulatory requirements, humus is removed from the work strip and stored on one side of the trench so that it does not mix with the rest of the soil or be damaged by compaction. In places with increased environmental sensitivity, humus may not be removed in the entire work width.

- Arrangement of pipes

The gas pipeline is built using single pipes with a length of 12 m and insulation applied beforehand. Pipes are initially delivered to the site and transported along the work strip, where they are laid on wooden pads or special beds in a line parallel to the gas pipeline trench. Distances are left between them in places where it is necessary to pass through the work width. Bends are also installed where the route changes its direction.

- Welding and covering of connections

The pipes will be supplied pre-insulated along the entire length except for their ends. The pipes are welded to each other to form a complete gas pipeline, and the welds are subjected to non-destructive testing. When defects are found in the welded joints, they are removed, after which non-destructive testing is carried out again. After a positive result, an isolation of the sections within the welds is carried out, and the metal surfaces at the ends of the pipes are cleaned and an insulating coating is applied, so as to obtain a complete, insulating coating of the gas pipeline. Thereafter the coating is tested along the entire length to detect any failures or other defects. The identified defects are removed and tests are done again until satisfactory results are reached.

- Excavation of a trench and pipe laying

A trench is excavated to a depth that ensures that once the pipe is buried, the minimum cover above it shall be no less than 0.8 m according to regulatory requirements. When crossing roads, railway lines, special sections crossing the tracks of other infrastructure and other obstacles, the depth of pipe laying (and, accordingly, the covering above it) may be greater.

The humus and lower soil layers excavated from the trench shall be accumulated separately from each other.

The gas pipeline is laid in the trench with the help of special mechanisation, taking care not to damage the insulating coating of the pipe. It provides electrical insulation of the pipe and has anti-corrosion functions. In the presence of rocky soils, soft soil or sand must be laid under the pipe. After laying the pipe, the trench is backfilled with the excavated material, which is carefully compressed. Excess material from the excavation will be hauled by the contractor to a suitable location or spread over the work width, if this is permissible.

- Gas pipeline cleaning, calibration and testing

The gas pipeline is cleaned from the inside using a cleaning tool/s, after which a tool with a calibration plate (plate) is inserted into the gas pipeline to check the passability of the pipe. The next step is to carry out a gas pipeline strength and tightness hydraulic test where a certain section of the gas pipeline is closed or, if possible the whole, is filled with water and then the pressure is increased to a predetermined value higher than that during which the gas pipeline will be operated. Typically, the volumes of water required for pipeline testing are supplied from water sources close to the route, mainly surface water or reservoirs, and then discharged in accordance with approved methods and recommendations. Necessary

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

measures will be taken to ensure that water intake and discharge for the tests does not have a negative impact. After the successful gas pipeline hydraulic test, it is dried and filled with gas.

- Restoration of terrain

Site restoration, including return of excavated humus and planting of vegetation, is usually carried out in the year of pipeline construction, unless weather conditions permit. Restoration may involve deep plowing or loosening the soil if it has been heavily compacted, then spreading the stored humus. Directional signs are placed to indicate the gas pipeline and control and measuring columns for cathodic protection at previously designated places for this purpose. Most often, they are located on the borders of the land plots, so that they do not interfere with agricultural activities. In sensitive areas, restoration works may be modified, depending on the specific conditions of each one.

B - Operation

The commissioning of the transmission gas pipeline shall be made according to Ordinance on the structure and safe operation of transmission and distribution gas pipelines, natural gas facilities, installations and equipment (Decree of the Council of Ministers No. 171/16.07.2004, published in OJ, 67/02.08.2004 and BDS EN 12327. The operation of the gas pipeline and the facilities thereto shall be according to Chapter Eight of the same Ordinance. The operating maintenance will be ensured by Bulgartransgaz EAD operating region.

The activities during the gas pipeline operation include:

- Natural gas transport;
- Gas transmission system automated control and management (the pipeline network and the facilities thereto) using an automated control system;
- Maintenance of equipment and facilities, repair works;
- Maintenance of gas pipeline easement.

After the commissioning of the gas transmission network, it must be run and kept in a condition guaranteeing its safe and incident-free operation. Apart from the operational risk, the s-called uncontrollable third party actions are another risks. The measures that can be used to ensure the protection of the gas pipeline and its adjacent facilities are mainly related to the physical protection of the facility (fences, perimeter security, etc.). Apart from that, monitoring of the gas transmission system will be carried out by Bulgartransgaz EAD operational staff, including:

- Periodic visual monitoring - inspections that detect changing conditions along the route and activities of third parties that compromise its safety;
- Release of cleaning and inspection tools (in-pipe devices) to check the condition of the gas pipeline;
- Cathodic protection system - monthly inspections of Cathodic Protection Station power system and/or through the electronic monitoring system and twice a year soil potential measurements at the cathodic protection test points.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

C - Decommissioning

The Ordinance on the structure and safe operation of the transmission and distribution gas pipelines, natural gas facilities, installations and equipment does not deal with the permanent decommissioning of gas pipelines and the facilities thereto. In this regard, after stopping and emptying the gas transmission network and natural gas facilities, in accordance with BDS EN 12327, the equipment is dismantled and the sites are closed in compliance with the general rules for safety technology.

The gas pipeline will be decommissioned when it reaches the end of its life. To decommission the facility, detailed procedures will be drawn up based on the necessary studies to proceed in accordance with the recommendations in the norms and standards for gas pipelines, namely that the pipes buried in the ground should be sealed by filling with suitable material and left in place, as their removal could cause greater damage to the environment or in case this is not applicable to undertake the appropriate measures for their removal. The above-ground facilities will be dismantled and the terrain will be restored and recultivated to its original state.

D - Restoration and subsequent use

It is planned to restore the terrain in which the pipes of the gas pipeline are laid, i.e. its linear part. Restoration, including the return of excavated humus and planting of vegetation, is usually carried out in the year of pipeline construction, unless weather conditions permit.

Technical revegetation is carried out in the presence of a humus layer and is expressed in its removal at the depth at which it lies over the entire area of the trench and removing the mineral layer of the soil from the trench. After the end of the construction and installation activities, the soil is returned back into the trench, compacted and the fertile humus layer is returned. Embankments, walls, fences, etc. located in the work area, which is equal to the easement of the gas pipeline, are restored. Signs are placed to indicate the gas pipeline and test points for the cathodic protection at places designated in advance for this purpose. Most often, they are located on the borders of land plots, so that they do not interfere with agricultural activities.

Subsequent use - possible subsequent use of the agricultural land for agricultural needs, as it was used before the laying of the gas pipeline.

The only sites for which restoration and subsequent use are not foreseen are the technological sites for the gas pipeline, described in detail in item 2. The land use will be changed concerning these sites.

6. Proposed construction methods

As per the technology shown in details in item 5

The construction activities will be carried out based on investment projects after their coordination with the relevant institutions and after obtaining the respective building permit.

The construction of the buildings and facilities will be carried out in accordance with the requirements of the Bulgarian and European legislation, and the materials used in the course of these activities will

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

meet the current requirements valid in the country. All planned activities will be carried out according to the fully adopted programs and plans for the realization of the site.

In the construction of the investment project, it is envisaged to apply proven methods developed on the basis of the experience gained in the construction of other gas pipelines and auxiliary facilities to the gas pipelines. The construction of the linear part will be carried out within a working section which will "move" along the track of the pipeline at an average speed determined in conformity with the equipment available to the builder. The speed of movement of the working area also depends on the relief of the land and the geological conditions of the terrain. In the concrete working section, the activities for the construction of the gas pipeline will be carried out consecutively, starting from the laying of the track on the terrain up to the process of restoring and recultivating the terrain.

Digging the trench is to be carried out with an excavator and a bulldozer and the actual laying the pipeline shall be executed from the edge of the trench.

7. Evidencing the necessity of the realization of the investment project.

The building of the gas pipeline connecting Chiren UGS with the existing gas transmission network run by Bulgartransgaz EAD in the area of the village of Butan is part of the national ten-year network development plan elaborated by Bulgartransgaz EAD for the period 2021 - 2030.

The construction of the pipeline has, as its main objective, the task to create the technical opportunity for the supply of natural gas through a new route to the Chiren gas storage facility, as well as to extract gas from the storage if and when necessary. At present, natural gas is delivered to/from the Chiren underground gas storage only along the route of the Vratsa 1 and Vratsa 2 gas pipelines which is a part of the existing gas transmission network owned by Bulgartransgaz EAD. After the building of the new track of the site Chiren UGS gas pipeline and connecting it with the existing gas transmission network of Bulgartransgaz EAD in the area of the village of Butan the security of natural gas supplies to the Chiren underground gas storage will be greatly enhanced because the natural gas will then run along one more line. The envisaged technological connectivity of the new gas pipeline with the existing gas transmission system in the Chiren UGS region will provide various options for the technological modes of operation of the network, including the provision of alternative routes along the transmission lines in case of need.

The implementation of the infrastructure will create prerequisites for improving the business environment in the entire region. The realization of the project will enable the future design and construction of gas supply diversions to nearby settlements, which - in turn – shall serve as an incentive for the accelerated economic development of this part of the country.

The availability of secure access to natural gas will reduce energy dependence, will guarantee gas supplies in the area of the pipeline for all household and industrial consumers. It will ensure the recovery and development of the economy in the municipalities along the gas pipeline, will enable enterprises to switch from electricity and petroleum-based fuels to natural gas thus realizing significant savings and greatly reducing the generated hazardous emissions. This makes the project in question extremely important for the Bulgarian economy.

8. Plan, maps and photos showing the boundaries of the investment project and providing information about the physical, natural and anthropogenic characteristics, as well as pertaining to the nearby elements of the national ecological network and the nearest sites subject to health protection and the distances to them.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

The route of the gas pipeline and the location of the technological sites for servicing the facility have no effect on sites subject to health protection regulations. The route of the gas pipeline and the technological sites have no impact on the protected areas within the meaning of the Protected territories act. The investment project track passes through the protected area identified as BG0002009 Zlatiyata, in conformity with the provisions of Directive 2009/147/EEC regarding the protection of wild birds.

Another area in closer proximity which, however, is not affected by the route of the gas pipeline is protected area BG0000614 called the Ogosta river, as per Directive 92/43/EEC on the protection of natural habitats, wild flora and fauna.

There is still another protected area located at a distance of about 3.5 km from the nearest point of the investment project. It is marked as ZZ BG0000594 "Bozhia most Ponora which is a site for protecting natural habitats and wild flora and fauna as designated in Order No ПД-262 / 31.03.2021 issued by the Minister of environment and water resources.

In conformity to §1, item 3 of the Additional provisions of the Ordinance on EIA, the sites, which subject to health protection, are residential buildings, medical institutions, schools, kindergartens and nurseries, higher education institutions, sports facilities, temporary accommodation facilities (hotels, motels, dormitories, holiday homes, holiday villages, campsites, huts, etc.), places for recreation and entertainment (swimming pools, beaches and bathing places, parks and gardens for recreation, villa areas, amusement parks, aqua parks, etc.), as well as the food production sites as per § 1, item 37 of the additional provisions of the "Food, commodity exchanges and food markets" act.

In this regard, the nearest settlements (respectively sites subject to health protection laws) prior to the amendment of the plan are the village of Devene, Vratsa municipality, in which case the route of the gas pipeline is located at 230 meters from the outskirts of the village and the village of Kriva Bara, the Kozloduy municipality where the route is at the 590th meter from the first closest houses of the village.

The attached appendixes present the map coordinate registers of the entire investment proposal (Appendix No 1), the geographic location in a scale of 1:25 000 in the pdf digital format and 2 drawings (Appendix No 4).

9. Current land use along the boundaries of the site or the route of the investment project.

The manner of permanent use of the lands within the easement of the gas pipeline track and the technological sites, the type of the territory, its ownership and category are shown in the following tables.

Table 1. Territorial balance of usage by the current point in time affected by the pipeline's easement

No	Permanent use	No. of properties	Affected area (in decares)	%
1	2210 A road from the republican road network	1	0,272	0,02%
2	2220 For a local road	6	2,243	0,18%
3	2230 For agricultural, forestry, local utilities road	177	80,228	6,44%
4	2310 For other land property for commuting and transport	1	0,745	0,06%

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

5	2440 For a gas pipeline facility	2	0,624	0,05%
6	2500 Agricultural field	654	1071,019	85,99%
7	2650 Abandoned permanent plantation	1	5,240	0,42%
8	2660 Other type of permanent plantation	4	4,571	0,37%
9	2700 Meadow	7	13,366	1,07%
10	2800 Pasture	22	40,015	3,21%
11	2840 Forests and bushes on agricultural land	1	0,855	0,07%
12	2950 Other type of forest for timber	1	2,633	0,21%
13	3040 Other type of non-timber forest area	1	0,041	0,00%
14	3100 Watercourse, river	5	4,179	0,34%
15	3140 Dam	1	0,206	0,02%
16	3190 Irrigation canal	13	3,269	0,26%
17	3700 Degraded arable land	1	15,878	1,27%
18	3930 Ravine	1	0,141	0,01%
		899	1245,525	100%

Table 2. Territorial balance of usage by type of ownership affected by the pipeline`s easement

No	Type of ownership	No. of properties	Affected area (in decares)	%
1	1 State owned, public	1	0,206	0,02%
2	2 State owned, private	46	57,686	4,63%
3	3 Municipal public	196	113,210	9,09%
4	4 Municipal private	26	53,150	4,27%
5	5 Private	528	868,983	69,77%
6	7 Public organizations	96	142,748	11,46%
7	11 Co-ownership	5	9,188	0,74%
8	99 Managed by the municipality	1	0,354	0,03%
		899	1245,525	100%

Table 3. Territorial balance of by the type of utilization affected by the pipeline`s easement

No	Utilization	No. of properties	Affected area (in decares)	%
1	1 Urbanized territory	2	0,624	0,05%
2	2 Transport area	8	3,260	0,26%
3	3 Agricultural territory	868	1231,313	98,86%
4	4 Forest area	2	2,674	0,21%

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

5	5 Waters and water bodies	19	7,654	0,61%
		899	1245,525	100%

Table 4. Territorial balance of by type of category affected by the pipeline`s easement

No	Category	No. of properties	Affected area (in decares)	%
1	Uncategorized	208	94,540	7,59%
2	II Second	24	51,776	4,16%
3	III Third	409	638,509	51,26%
4	IV Fourth	213	348,971	28,02%
5	V Fifth	25	81,316	6,53%
6	VI Sixth	1	3,552	
7	VII Seventh	19	26,861	2,16%
		899	1245,525	100%

Table 5. Territorial balance of by manner of permanent use affected by power cable easement and AGD

No	Permanent use	No. of properties	Affected area (in decares)	%
1	2220 Local road	4	1,467	11,89%
2	2230 Farm forest and local utility road	8	10,873	88,11%
		12	12,340	100%

Table 6. Territorial balance of by ownership type affected by power cable easement and AGD

No	Type of ownership	No. of properties	Affected area (in decares)	%
1	3 Public municipal	12	12,340	100,00%
		12	12,340	100%

Table 7. Territorial balance of by manner of use affected by power cable easement and AGD

No	Manner of use	No. of properties	Affected area (in decares)	%
1	2 Transportation territory	4	1,467	11,89%
2	3 Agricultural territory	8	10,873	88,11%
		12	12,340	100%

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

Table 8. Territorial balance of by type of category affected by power cable easement and AGD

No	Category	No. of properties	Affected area (in decares)	%
1	Uncategorized	12	12,340	100,00%
		12	12,340	100%

For the specific sites, a procedure for changing the use of land for non-agricultural needs will be carried out by the Agricultural land commission at the Ministry of Agriculture.

10. Sensitive areas, including sensitive areas, vulnerable zones, protected areas, sanitary protection zones around water sources and drinking water supply facilities and adjacent mineral water sources used for healing, prophylactics, drinking and hygienic needs, etc.; National Ecological Network.

In the Republic of Bulgaria, the sensitive areas are defined by Order No ПД-970 / 28.07.2003 of the Minister of environment and water resources. The route envisaged for the implementation of the investment project does not fall within any sensitive areas quoted in the above-mentioned order.

In conformity with the opinion of the Danube River Basin Directorate with outgoing Reg. No ПЙ-01-946-(1)/20.12.2022, the investment project does not affect any facilities for water collection from groundwater and sanitary protection zones as defined by Ordinance No 3 of 16.10.2000 on the terms and conditions for the research, design, approval and operation of sanitary protection zones adjacent to water sources and drinking water supply facilities as well as close to mineral water sources used for healing, prophylactics, drinking and hygienic needs. The presented corridor of the route of the transmission gas pipeline does not fall within the buffer zone within a radius of 1000 m from water intake facilities for independent drinking and domestic water supply without certain SOZ (*Sanitary Protection Zones, Bul.*), which require compliance with restrictions of Appendix No 1 to the National Catalogue of Measures set in the RBMP (*River Basin Management Plans*).

The opinion of BD (*basin directorate*) "Danube Region" sets out the measures to be taken into account in the process of implementing the investment project:

A: Prohibitions and restrictions relating to the envisaged activities

Measure code	Measure name	Actions to implement a measure	Action code
PM_2	Protection of the chemical state of groundwater from pollution and deterioration	2. Prohibition for carrying out activities leading to the discharge of dangerous substances into the groundwaters	PM_2_2
GD_1	Prevention of discharge of priority substances into the groundwater	2. Prohibition or restriction of activities which increase the risk of direct or indirect discharge of priority or dangerous substances or other	GD_1_2

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

		pollutants into the groundwaters, including the exposure of groundwater to the surface, by collecting the sediments and soils covering the water body	
HY_7	Improving the hydromorphological condition of the rivers	Prohibition for disturbing the natural state of riverbeds, riverbanks and coastal floodplains, with the exception of activities for deepening the fairway and correcting the river bed to ensure/improve safe navigation in the common Bulgarian-Romanian section of the Danube River and during the flood protection activities as well as other activities in accordance with the current legislation.	HY_7_5
DP_2	Reduction of diffuse pollution from industrial activities	8. Prohibition for washing and servicing of vehicles and equipment in the coastal floodplains and the lands belonging to the reservoirs.	DP_2_8
PM_9	Prevention of the deterioration of the state of the waters from projects and activities at the investment proposals phase	2. Prohibiting the implementation of investment proposals leading to negative changes in the state of water bodies	PM_9_2

According to the opinion of BD Danube Region, the envisaged activities related to the investment proposal are not in violation of the above quoted prohibitions and restrictions.

B: Other measures to be considered when carrying out the planned activities

Measure Code	Name of measure	Actions to implement a measure	Action code
DP_11	Implementation of environmental practices or best available techniques to limit the discharge to groundwater of	1. Application of environmental practices or best available techniques to limit the discharge to groundwater of	DP_11_1

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

	polluting substances	polluting substances	
DP_2	Reduction of diffuse pollution from industrial activities	3.Landfilling of production waste in accordance with the valid waste treatment requirements	DP_2_3

The opinion of BD "Danube Region" concludes that the implementation of the investment proposal is permissible against the environmental protection objectives set out in the RBMP 2016-2021, subject to the conditions and measures specified in the opinion and is permissible also in relation to FRMP 2016-2021, and also that the envisaged activities are not in contradiction with the measures envisaged in the Program on the measures to reduce flood risks.

The investment project does not affect protected areas within the meaning of the Protected Areas Act. The gas pipeline falls within the boundaries of the protected area BC0002009 Zlatiyata which is a protected area under Directive 79/409/EEC on the conservation of wild birds, adopted by Order No ПД - 548/05.09.2008. The envisaged activities for the construction of the gas pipeline will be carried out within the construction track, coinciding with the easement of the pipeline provided for the establishment and will comply with the restrictions provided for in the order.

The protected areas closest to the route of the investment project are:

1. Protection area BC0000614 Ogosta River, protected as per Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora, approved by Council of Ministers No 811/16.11.2010 (promulgated in the State Gazette (SG) No. 96 of 7 December 2010, amended, SG No. 67 of 13 August 2021) which is located about 500 m east of a section of the gas pipeline`s designed route close to the village of Kriva Bara, Kozloduy Municipality;
2. BC0000594 Bozhia Most - Ponora, a protected area under Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora, adopted by Order No ПД-262 / 31.03.2021, located at about 3500 m southwest of PF Chiren 3 at the underground gas storage facility Chiren within the territory of the village of Chiren, Vratsa municipality.

Given the limited territorial scope of the impacts which is only within the construction strip and the remoteness of the two zones no impacts on them caused by construction and operation works are expected to occur.

11. Other activities related to the investment project (e.g. extraction of building materials, new plumbing, extraction or transportation of energy, housing works).

During the implementation and operation of the investment project, no extraction of building materials is envisaged.

Energy extraction is not in planning.

For the construction of the gas pipeline, no activities have been planned in relation to any residential house construction activities.

For the realization of the investment proposal no plans have been set up for the construction of water supply pipelines to the facilities in the area.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

During the actual construction works on the investment project, water will not be needed. If water is needed for concrete mixtures or other technical purposes, the necessary quantities of water will be provided with cisterns.

For drinking purposes bottled water will be duly provided.

Water will be needed to conduct the hydraulic test and the quantity will be determined and presented in detail in the investment project. This quantity will be provided by surface water sources, and the returning of the water will take place in the same locations from which it was taken, but after filtration and precipitation (if necessary). Water from the "Chiren III" dam will be used to conduct the hydraulic test under the permit issued with No. 11490001 / 14.06.2007, amended and extended by Decision No Bp -1 / 21.06.2022, which allows for the use of water for cooling, fire fighting needs and hydrotesting.

A new connection point to the electricity distribution network will need to be determined only for the LVA Manastirishte. For the remaining facilities – PF Chiren 3 and PF Butan the already available electricity supply of Bulgartransgaz EAD will be used which is located near the new sites.

The exterior electricity power supply for the site of the LVA Manastirishte is provided according to the conditions and the way of connecting customers to the electricity grid (implemented according to the opinion of the Electricity Distribution Company operating in the area).

The easement zone of the power supply cables and the electricity cables for power supply of the anode grounding devices (AGD, Bul.) are 2 m on both sides of the cable as per the provisions of Ordinance No.16 on energy facilities easements.

12. Other permits required for the realization of the investment project.

After the entry into force of the Order for approval of the Detailed Spatial Plan-PP for the site in 2015 named "High Pressure Transmission Pipelines with AGRS from Chiren UGS to the towns of Kozloduy and Oryahovo" circumstances have been identified necessitating the termination of the project. As the route of the current investment proposal made by Bulgartransgaz EAD - "Gas pipeline connecting Chiren UGS with the existing gas transmission network of Bulgartransgaz EAD in the area of the village of Butan overlaps - for the most part - with the route of the site "High Pressure Transmission Pipelines with AGRS from the Chiren UGS to the towns of Kozloduy and Oryahovo" an amendment shall be made to the approved DSP-PP in order for it to be used in the new investment proposal.

Pursuant to Art. 125, par. 7 of the Spatial Development Act, the elaborated assignment for the drawing up of a draft Amendment to the Detailed Spatial Plan- Parcelling Plan (DSP-PP) has been approved by the Ministry of Culture with a letter No CT-84-684/07.09.2022 and by the MOEW with a letter No. EIA-17/16.12.2022. The assignment was submitted to the Ministry of Regional Development and Public Works with a letter bearing the entry No. AY10-14/21.12.2022 containing a request for the issuance of a permit for amending the DSP-PP.

For the investment proposal, a draft amendment to the DSP-PP has been developed on the grounds of Art. 134, par. 1, item 2 of the Spatial Development Act in the necessary parts thereof.

The main permit regimes related to the implementation of the investment proposal pertain to the approval of the draft project for the amendment of the approved DSP-PP and to the issuance and obtaining of a building permit, according to the legislation currently in force in the country, namely the Law of territorial planning and the applicable bylaws.

The investment projects are subject to compliance evaluation performed by a Consultant under Art. 166

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

of the Spatial Development Act, as well as the coordination and approval of the projects in view of the need of the issuance of the necessary building permits.

III. Location of the investment project which may have a negative impact on the unstable environmental characteristics of the geographical areas which should be taken into consideration, and in particular:

1. Existing and approved land use

According to the information submitted in Section II, item 9

2. Swamps, riparian areas, river estuaries;

Swamps are not affected as well as the river estuaries.

The crossing of gas transmission pipelines by rivers is envisaged in places where the coastal strip, flooded by high waters, has a minimum width. When rivers cross the gas pipeline, the requirement will comply with the horizontal angle between the dynamic axis of the river flow and the project pipeline which has to be between 90° to 60°. The most significant water course, which intersects, is the Ogosta river. If possible (for technological reasons) the project will include a trenchless crossing of the river – through a horizontal drilling method - in order to preserve the riverbed and the banks of the river to the maximum possible extent. In this way, the animal and plant species, found in the river, will remain unaffected by the construction of the pipeline.

Small water courses and gullies along the route of the pipeline, which have not been corrected, are planned to be crossed by the pipeline via open digging and the installation of special weights.

3. Coastal zones and marine environment

The investment project has not relation to coastal areas or any marine environment.

4. Mountain and forest areas

The investment project shall not affect any mountain areas. The establishment of easement rights in forest areas (2 land properties, 0.21% of the easement area) involves the payment by the contracting authority of compensatory afforestation fees. During the construction of the gas pipeline in the forest areas, the vegetation will be removed during the cleaning of the construction strip.

5. Areas protected by law

The investment project does not affect any areas protected by related laws.

6. Elements of the National Environmental Network affected by the project

The route of the investment project falls within the boundaries of the protected area BC0002009 Zlatiyata- a protected area under Directive 79/409/EEC on the conservation of wild birds, adopted by order No. ПД - 548/05.09.2008. The planned activities for the construction of the gas pipeline will be carried out within the construction strip coinciding with the establishment of the easement of the pipeline and will comply with the restrictions provided for in the order.

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

Closest to the location of the investment project are two protected areas:

- Protection area BC0000614 Ogosta River, protected as per Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora, approved by Council of Ministers No 811/16.11.2010 (promulgated in the State Gazette (SG) No. 96 of 7 December 2010, amended, SG No. 67 of 13 August 2021) which is located about 500 m east of a section of the gas pipeline`s designed route close to the village of Kriva Bara, Kozloduy Municipality;
- BC0000594 Bozhia Most - Ponora, a protected area under Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora, adopted by Order No ПД-262 / 31.03.2021, located at about 3500 m southwest of PF Chiren 3 at the underground gas storage facility Chiren within the territory of the village of Chiren, Vratsa municipality.

7. Landscape and sites of historical, cultural or archaeological importance

According to the classification scheme of Bulgarian landscapes (Petrov. P, Geography of Bulgaria, 1997), prepared according to the classification of the natural territorial complexes in Bulgaria, the country`s landscape system includes 4 classes (lowland, intermountain lowlands, valleys and mountain landscapes). The investment project falls within the North-Western region, the Western Stara Planina sub-region, the Southern Danube sub-region and the Northern Danube sub-region.

Cultural heritage sites

On the basis of a framework agreement with the National Archaeological Institute and the Museum of the Bulgarian Academy of Sciences, Bulgartransgaz EAD has carried out activities for data collection and field documentation from archaeological searches conducted along the route of the gas pipeline and technological sites including

- Archival investigation of the sources of the archaeological information on the presence of archaeological sites in the studied areas;
- Search for archaeological sites along the route of the gas pipeline, including inspection along the route and its easement zone; of the technological sites for the valves; the connection junction; the gas pipeline purification station, the fiber optic cable lines, electrical wiring, supply lines, etc.

On the basis of the investigation performed, a scientific report by the NAIM-BAS (*National Archaeological Museum at the Academy Of Science, Bul.*) (Permit No 437/2022) has been prepared for the performed field archaeological investigations of the archaeological sites along the route of the gas pipeline and its adjacent facilities by taking into account the Bulgarian legislation in the sphere of preservation of the immovable archaeological cultural heritage, providing measures for the protection of registered archaeological sites. The survey was carried out during the period between 06.11 to 23.11.2022 by a team staffed by Dr. Vladislav Zhivkov (supervisor), Atanas Danov (deputy manager), Radi Radev, Nikolay Gyurov, Ivan Grigorov, Valeri Stoichkov (team members).

The registered sites and the proposed measures for their conservation are:

- Site No 1 - Chiren, Municipality / region Vratsa, Slatina locality (at Chiren PGH); Type - Probably a settlement; Conservation measures - Preliminary archaeological research;

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- Site No 2 - Chiren, Municipality / region Vratsa, Tumbino Branishte area; Type - Probably a settlement; Conservation measures - Monitoring during construction;
- Site No 3 - Devene, Municipality / region Vratsa, Mlekan area; Type - Probably a settlement; Conservation measures - Monitoring during construction;
- Site No 4 – Three wells, Municipality / region Vratsa, Livadeto area; Type - Probably a settlement; Conservation measures - Monitoring during construction;
- Site No 5 – 1- Malorad, Municipality of Malorad. Borovan, Vratsa Region, Kaminiti wells; Type – Burial mound and adjacent settlement; Conservation measures – the mound is not threatened by the construction of the gas pipeline. Given that the settlement is located west of it (site 4-2) and it is very likely that it falls into its necropolis it should be monitored during construction;
- Site No 5-2 Malorad, Municipality of Malorad. Borovan, Vratsa Region, m. Kaminiti wells. Ancient settlement; Type – probably settlement; Conservation measures — No conservation measures;
- Site No 6 Rogozen, Municipality Hayredin, Vratsa Region, Visoko pole area; Type – probably settlement; Conservation measures - Monitoring during construction;
- Site No 7 Manastirishte, Municipality Hayredin, Vratsa Region, Turek area; Type – Burial mound; Conservation measures – no conservation measures;
- Site No 8 Hayredin, Municipality Hayredin, Vratsa Region, Turek area, Type – Burial mound, Conservation measures – Comprehensive study – including in the area that remains outside the easement. It is highly recommended that the construction works in the area between the two mounds and around them be carried out with mandatory archaeological observation, as it is possible that there were more mound embankments in the area, which have been levelled of at the moment.
- Site No 9 Kriva bara, the brick making area; Type - Settlement from the early Bronze age; the Late bronze age. Settlement or necropolis from the Late metal age (according to two reports by B. Nikolov and D. Dimitrova see below). Settlement from the Middle Ages; Conservation measures - Preliminary archaeological research.
- Object 10-1 Kriva bara, Kozloduy municipality, Vratsa Region; Type – Burial mound; Conservation measures — No conservation measures. The mound falls within the boundaries of the protected zone – if construction activities are planned in this part, a full study should be carried out.
- Object 10-2 Kriva bara, Kozloduy municipality, Vratsa Region; Type – Burial mound; Conservation measures - No conservation measures;
- Site No. 11 Butan, Kozloduy municipality, Vratsa Region; Type – Burial mound; Conservation measures - Comprehensive archaeological research, including in the protected area. Mandatory monitoring of construction activities nearby.

The measures envisaged in the report for the protection of archaeological sites will be respected by Bulgartransgaz EAD in order to preserve the cultural heritage along the route of the gas pipeline. A contract will be signed with NAIM-BAS for preliminary and comprehensive archaeological research of sites for which this is necessary for monitoring for the period of construction of the gas pipeline

8. Territories and/or areas and sites with a specific sanitary status or subject to health protection.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

The investment project shall not affect areas and/or areas and sites with a specific health status or subject to health protection. The closest settlements (respectively sites subject to health protection) to the amendment of the plan are the village of Devene, Vratsa municipality – the route of the gas pipeline is 230 meters from the end houses of the village and the village of Kriva Bara, Kozloduy municipality – the route is 590 meters from the houses of the village. The implementation of the investment project will not adversely affect any of the factors of the living environment in the nearest settlements, listed above, and therefore does not pose any risks to human health.

IV. Type and characteristics of the potential environmental impact when taking into account the likely significant effects on the environment resulting from the implementation of the investment project:

IV.1.1. Impact on the population and on human health

All planned construction activities in connection with the implementation of the IP will be carried out within the construction strip, which covers the easement of the pipeline, is symmetrical and has a width of 2 x 15 m. The easement of the gas pipeline, subject to the investment project, passes outside of the settlements and does not affect sites subject to health protection.

In the implementation of the proposal, it is essential to ensure the safety and health of both workers and nearby population during the construction and operation of the pipeline.

During the construction works, the following temporary and short-term effects on workers' health which may occur are:

- Physical exertion and risk of accidents at work related to the use of heavy machinery - trucks, excavators, etc.;
- Risk of burns, falls, injuries and accidents in case of non-compliance with the regulations for safe and healthy working conditions on the construction site.
- Possible pollution with dust on the site;
- General and local vibrations generated during excavation works along the route of the gas pipeline, the work of construction equipment for carrying out various types of construction works (including transport) and service machines (pneumatic tools, rotating and vibrating tools, etc.). Vibrations in the environment are also generated in the process of pipe ramming during trenchless crossing of roads and water bodies;
- Electromagnetic fields occurring near power supply locations;
- Radiations generated during the performance of the processes of:

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- Arc welding of individual sections of the pipeline (source of optical radiation in the following areas of the spectrum: bright visible radiation – white/blue light; infrared (IVR) and ultraviolet (IVR), as well as ionizing radiation);
- X-ray radiography (X-ray source) applied to assess the integrity of welding joints, rolls, forgings, castings, etc., along the pipeline.
- The unfavourable microclimate of the working environment;
- Physical exertion.
- During the construction works and the implementation of the investment project, the generation of mainly household and construction waste from the construction and installation of equipment within construction sites is also to be expected. The construction waste management will comply with the requirements of the Ordinance on Construction Waste Management and on the Use of Recycled Construction Materials (promulgated in the SG No. 98 of 8 December 2017). During operation, the generation of waste from the cleaning of the pipeline, characterized as hazardous, is expected. In accordance with art. 8 of the WMA, the delivery and acceptance of hazardous waste will be carried out only on the basis of a written contract with persons holding a permit, complex permit or registration document under art. 35 of WMA for the respective activity and waste site management with the relevant code, according to Ordinance 2 on waste classification. In view of this, no deterioration of the ecological status in the area is expected.
- Water will be used/discharged only during the hydro testing and in compliance with the permits issued for the activity under the S.V.;

A direct, short-lived, temporary and non-cumulative impact on workers is expected.

The impact will be localized immediately in the places where construction activity is carried out.

The possible impact will be of very low intensity. The impact will not be complex.

The impact will eventually occur in construction works using mechanized equipment/transport or mechanical activities, such as cutting, welding, etc. The impact will be reversible.

Combination with impacts from other IPs is not expected.

Impact on the health of the population, incl., in the nearest settlements during construction is not expected.

During operation

During the operation of the IP, no emissions of harmful and dangerous substances or energy (ionizing / non-ionizing) will be formed. The waste will be delivered to operators with valid permits for the treatment of the relevant waste. Due to the above, there will be no impact on the factors of the biological environment within the meaning of §.1, item 12 of the Supplementary Provisions of the Health Act and on sites subject to health protection and there will be no risk to human health.

Due to the above, no impact is expected on the population in the nearest settlements and on human health.

Impact on workers' health: no negative impacts are expected.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

IV.1.2. Impact on cultural and historical heritage

On the basis of the research, a scientific report of NAIM-BAS (Permit No 437/2022) has been prepared for field archaeological investigations of archaeological sites along the route of the gas pipeline and its adjacent facilities and taking into account the Bulgarian legislation in the sphere of preservation of the immovable archaeological cultural heritage. It provides for certain measures for the protection of registered archaeological sites. All identified sites will be studied and preserved in advance of the works with the task of preserving the cultural heritage to the maximum possible extent.

A possible impact can be expected when new sites are opened, but given the fact that monitoring for the construction period is also envisaged the risk of damage to archaeological sites is not great. In this way, the control of the excavation works will reduce the risk of possible destruction of cultural values so far unknown.

The operation of the pipeline will not affect the existing cultural heritage sites.

IV.1.3. Climate. Ambient air

Climate

The gas pipeline, subject to the investment project, is located - in climatic terms - within the temperate continental sub-region of the European continental climatic region. For ambient air quality, the following climatic factors are of great importance: sunshine and total solar radiation, air temperature, humidity, precipitation, wind direction and speed, quiet weather, etc. All these factors affect the dissipation and transport of the emitted harmful substances in the surrounding atmospheric air. The monthly average values of the meteorological parameters for the region of the city of Vratsa are presented according to the "Climate Guide of Bulgaria" and according to data from the Vratsa weather station. The days during the summer are hot and nights are cool. Winter is not cold. The proximity of the city of Vratsa to the mountain has a characteristic effect on the climate, complementing to some extent the climatic factors with elements of mountain climate. Annual temperatures range from - 1.6°C in winter to 22.4°C in summer. The average annual maximum air temperature is 16.0°C and the minimum average annual air temperature for the region of Vratsa – 6.7°C. The average monthly relative humidity is 72%. The maximum amount of precipitation is registered in spring and summer - respectively 236 and 246 mm from a total of 811 mm for the whole year. The days with snow cover are about 62, and its thickness reaches 30 to 70 cm. Rainfall is fairly evenly distributed by months. The largest rainfall comes in May and June - over 100 mm.

In operation, the pipe system is encapsulated, but when cleaning activities are carried out on the pipe, controlled gas release is realized in small quantities in the immediate environment, which are equipped with blow down vents. No other greenhouse gases are expected to be formed in the construction and operation of IPs and, respectively, no corresponding impact on any climate change processes.

No climate impact is expected in the construction and operation of the IP.

Ambient air

During the construction works, emissions of certain harmful substances and dust due to the operation of construction machinery and dust from various sources in the area of the project are expected, incl.,

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

during the following activities/processes:

- Clearing, digging bulldozing, alignment, etc., of the ground excavation works;
- Processing of dust materials - loading and unloading of land masses;
- Dust formation from wind erosion in the open dust generating building areas (land sites).

The dustiness during the execution of construction works depends largely on the weather conditions during the construction activities and the season during which the construction works are carried out; the climatic and meteorological factors (wind, humidity, temperature, stability of the atmosphere) as well as the characteristics of the ground particles and many other conditions. Given the fact that the route of the gas pipeline, subject to this investment proposal, is outside any populated areas, it is not assumed to reach dusting levels exceeding the maximum exceeding concentrations in the nearest settlements. In principle, these emissions are limited within the construction zone of the facilities.

The impact rate is low. The expected impact is direct, reversible and only during the construction period and its significance is determined to be between low to moderate. Water sprinkling is planned in order to maintain sufficient moisture during the dry summer and autumn months and windy weather, which ensures controlling emissions by reducing dust levels by 80%.

The extent of the expected impacts when digging the pipeline trench, the trench for the underground electricity cables and the construction of temporary roads for access to the working strip are of low degree and intensity and are temporary (only on certain days). The spread of pollutants is expected to be limited to 15 m from the construction strip, therefore residential areas are not expected to be affected.

The expected impact is direct, negative and temporary only during the construction period.

The expected impacts of gas emissions from the transport activities related to the project on the national and municipal road network - supply of pipes and fittings and transportation of workforce, auxiliary materials and earth masses - are of low to moderate importance and affect the easement areas of the sections of the roads used by the project during construction. The impact is direct, negative and temporary. A cumulative impact is expected on the traffic along the national road network, which will be used by the construction vehicles. The cumulative load rate is low as emission levels are generally low after the corresponding EURO 5 catalyst devices for light commercial vehicles and EURO V for trucks.

During the normal operation of the pipeline, there are no potential sources of emissions from the main ground facilities: valve assemblies, pigging facility.

With regard to the expected impacts on ambient air quality, it can be summarized that the construction of IP is not associated with significant negative impacts on ambient air quality. During the operation of the pipeline, no emissions of harmful substances into the ambient air are foreseen.

IV.1.4. Impact on waters

During the construction of the gas pipeline, crossings of the following water bodies are envisaged: the rivers Barzia, Ogosta river and the Ribene river.

The crossing of the gas pipeline over the Ogosta river is planned to be carried out by horizontal drilling, and the other rivers and ravines are planned to be carried out by the open method. The direction of

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

passage is chosen on straight, watercourse-resistant sections of the river with sloping non-diluent banks and with a minimum width of the coastal strip flooded by high waters. The results from the hydrogeological and hydrological studies, as well as the necessary corrections of a river in advance, have been fully reported.

The underwater crossing is perpendicular to the dynamic axis of the river current, the angle of passage can be reduced to 60°.

When crossing rivers, the level of the upper forming of the pipeline must be at least 0.5 m lower than the predicted boundary profile of the dilution of the river bed for 25 years from the laying of the pipeline, but not less than 1 m below the elevation of the bottom of the water body during the laying of the pipeline.

In order to provide the pipeline against surfacing in sections with high groundwater and swampy areas, the plan provisions for the use of weights.

According to the opinion of the Danube River Basin Directorate, expressed in report No. IIY-01-946-(1)/20.12.2022, the investment project does not affect the facilities for water collection from groundwater and sanitary protection zones, defined by Ordinance No. 3 of 16.10.2000. on the terms and conditions for research, design, approval and operation of sanitary protection zones around water sources and drinking water supply facilities and around mineral water sources used for healing, prophylactic, drinking and hygienic needs. The presented corridor of the route of the transmission pipeline does not fall within the buffer zone with a radius of 1000 m from water intake facilities for independent drinking and domestic water supply without certain POPs, which require compliance with restrictions under Appendix No 1 to the National Catalogue of Measures attached to the RBMP.

The opinion of BD "Danube Region" concludes that the implementation of the investment proposal is permissible against the environmental protection objectives set out in RBMP 2016-2021, subject to the conditions and measures specified in the opinion, and is also permissible against the FRMP 2016-2021, and the envisaged activities are not in contradiction with the measures envisaged in the Program of measures aimed at reducing flood risks.

In view of this, and in order to prevent and mitigate the adverse impacts of the implementation of the IP, the measures proposed by the BD, which are part of the Program of Measures in RBMP 2016-2021 and FRMPs 2016-2021 in the Danube region are set out and presented in item IV.11.

Water from the "Chiren III" Dam will be used to conduct the hydraulic test under a permit issued with No11490001/14.06.2007, amended and extended by Decision No Bp -1/21.06.2022, which allows the use of water for cooling, fire needs and hydrotest. The return of the water will be done again in the dam, after filtration and sedimentation, as well as in accordance with the issued discharge permits. The specific quantities and points for water collection and discharge will be determined during the investment project stage.

The current project does not provide for new potable water collection, for industrial and other needs through the public water supply (water supply or other networks).

The main process which will take place during the operation of the pipeline, the transmission of natural gas is not related to the use of any fresh, potable water.

The significance of the impact on geomorphology and water quality in rivers is estimated to be between low to moderate since there is practically only the risk of direct, local, i.e., around and at the river

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

crossing sites and a short-term negative but reversible impact on the receptor, which generally has a high sensitivity. No runoff disturbances are expected.

No impact on the quality and geomorphology of surface water bodies is expected during the operation of the site as well as the gas pipeline and its land facilities.

The identification of the expected impact of the implementation of the investment project on groundwater is made on the basis of the envisaged specific activities and facilities with attention being given to construction activities which may establish the availability of groundwater, with a lowering of the water level as well as the direct or indirect entry of a pollutant into such waters and after taking into account the stage of implementation of the project.

The possible impacts on the groundwaters in the process of construction of the pipeline are analogous to other construction activities. They can be divided into activities which are directly related to the implementation of the project:

- Temporary drop of groundwater levels;
- Ingress into groundwater of washing liquids, containing various reagents from drilling or the underground passage of river flows;
- Impacts in case of non-compliance with technological discipline and emergency situations;
- Pollution of groundwater from surface spills (oils, fuels, waste, hazardous materials not stored covered, etc.);
- Pollution of groundwater by stormwater passing through undisposed waste.

The first group of impacts are possible as a result from activities related to the disturbance of the geological base during excavation works when they reach and cross the groundwater level. This can be done with the following activities:

- Digging the trench for laying the pipeline – in the greater part of the route the excavation works will be up to 3 meters deep: only in areas with more complex relief they will be deeper;
- Digging the trench for laying electrical cables – excavation works will be up to 1.1 meters deep: only in areas with more complex relief they will be deeper;
- Trenches for the foundations of the auxiliary buildings and facilities related to the construction and operation of the route – new VA and PF, temporary bases and warehouse sites (the latter two are temporary, on shallow foundations or without any foundations at all);
- Excavation works related to the crossing of roads, ravines and the rivers.

The second group of impacts are possible in most of the construction activities: for example, emergency fuel spills can happen at all locations of movement of construction and transport machines and equipment.

The significance of the expected impacts, without the application of mitigating measures, can be assessed as being from low to moderate.

During the operation of the future pipeline, no impact on any water sources is expected to occur.

IV.1.5. Impact on the soils

During the construction period the impacts expected may be located within the construction strip along

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

the pipeline route and on the additional access roads.

According to the balance of the territories that will be affected by the route (easement) of the pipeline are agricultural territories - 98.86%, forest areas - 0.21%, etc., territories with very small distribution rates.

In the affected areas, direct impacts on soil resources will include total or partial physical (mechanical) disturbance of the soil profile and impairment of soil ecosystem functions; soil contamination (mainly mechanical, with domestic solid and construction waste) in case of non-compliance with technological discipline, secondary compaction of the subterranean layer of the soil (as a result of the use of construction and transport equipment), physical destruction and sealing off of a part of the affected areas. It is possible that the mentioned impacts may also lead to a deepening, or the emergence, of degradation processes such as erosion (water and wind), surface waterlogging, etc. Soils in the surrounding areas will also be affected to a much lesser extent.

All of the above-mentioned adverse effects, direct or secondary, are cumulative in relation to the ecosystem functions of the soil and, above all, its productivity. Except for the physical destruction and sealing off of a part of the affected areas (in the outskirts of the sites of the permanent facilities along the route of the gas pipeline and the additional access roads), all other impacts are temporary and mainly average in duration during the period of construction. The construction of the pipeline will also lead to a temporary change in the manner of land use on the outskirts of the arable lands, pastures and forests.

Violation of the construction of the soil in the formation of the trench of the gas pipeline (excavation) and its backfilling will subsequently have a direct, local and short-term adverse impact on soil resources, temporarily impairing the ecological functions of the soil. Territorial scope of impact: local, within the scope of the construction strip, at the site of the trench for laying pipes along the route of the gas pipeline. Degree of impact: negligible if backfilling and reclamation activities are carried out according to the accepted requirements.

During the normal exploitation of the investment project, no impacts on the soils of the area are expected to occur. These can only be observed as a result of repairs being carried out along the route in emergency situations and will be similar to the impacts identified during construction. As a major difference, it can be pointed out that during the exploitation stage, the impacts will affect only the soils within the boundaries of the established easement and will be significantly shorter than those during the construction of the site.

IV.1.6. In-depth effects in the construction zones

The impacts during construction works and when digging the trench, laying the pipes and backfilling the trench shall be insignificant to low, direct, negative and irreversible. The significance of the expected impact, when digging the trench along the route of the pipeline is low (low impact, low sensitivity of the geological environment).

In areas with weak soils and when crossing faults, the sensitivity of the geological environment is defined as medium, and the degree of impact as low; respectively the significance of the impact will be moderate. With strict implementation of the methods of construction and storage of materials, contamination of the upper part of the geological base is not expected.

The impacts on the geological environment of the crossings of water bodies and roads depend on the method of passing at the individual points. The expected impact of excavation activities, when crossing

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

gullies and rivers by digging is analogous to that of digging the trench. In some sections where the depth of the trench will be greater, the degree of impact will be low to medium. In these cases, given the low sensitivity of the geological environment, the significance of the impact will be weak to moderate. No impact on the geological environment is expected from the temporary extensions of the construction strip required in carrying out the works.

No impact on the geological basis is expected during operation. If, in the event of accidents, additional excavation works are required to remove them outside the boundaries of the trench, the impacts will be analogous to those during the construction works.

IV.1.7. Impacts on the landscape

A detailed description of the landscape, within the scope of the investment proposal, is presented in section III.7. Based on the activities envisaged for the implementation of the investment project, the following impacts can be clearly identified:

Given the temporary nature of the works, the degree of impact on the landscape is low to medium, and the significance of the impact will be from weak to moderate and depending on the nature of the landscape. In the areas occupied by a forest landscapes (a very small part, only 0.21% of the easement zone), where the passage through valleys may be required, a physical change of the landscape will occur and the sensitivity is higher (medium). In the areas occupied by agricultural land there will be no such change and there the sensitivity is very low.

The visual impact is determined primarily by the visual openness of the landscapes. In places where the projected pipeline passes through open sections with greater visibility, the visual impact will cover a wider landscape corridor, and there will be a medium sensitivity effect.

The visual impact will be greatest along the route of the pipeline located near the settlements – the closest are the villages of Devene and the village of Kriva bara. Residents of the two settlements, who will constantly monitor construction activities, are expected to experience a degree of impact in the range from medium to high. Given the relatively short-term duration of construction work on the pipeline, the impact rate is expected to be low to medium.

The sites set for crossings water bodies and roads are extensions of the construction strip at the places of crossing. Most of them are likely to be located on meadows, pastures or agricultural land. These sites are temporary and will only be used during construction. For sites in meadows, pastures and agricultural land, the impacts on the landscape will be expressed in the temporary impossibility to use the affected areas. The impact will be short-lived, local and reversible after the completion of construction works. The extent of the impact on the landscape and its sensitivity are very low and, therefore, the significance of the impact will be low.

During the operation, changes in the landscape will be associated with loss of well-developed vegetation (trees and shrubs) within the easement zone of the pipeline in the sections of the forest landscape route. In the sections occupied by agricultural land within the boundaries of the construction strip, over time it will regain its former appearance. The degree of impact will be low, the sensitivity - low, and the significance of the impact of the pipeline on the features of the respective landscape will be low to moderate.

IV.1.8. Impact on biodiversity, its elements and protected areas

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

As a result of the implementation of the investment proposal, the following impacts can be identified:

During the construction, during the preparation of the construction strip, the vegetation will be completely removed. In general, the grass vegetation has relatively good self-restorative abilities and when applying the storage and back-laying of the humus layer envisaged in the project, and recultivation, the effect is expected to be temporary and the vegetation to recover for several growing seasons (2-3). The sensitivity with respect to this impact can be assessed as low.

In the forested areas the route of the gas pipeline, in the 30 m strip, the development of trees and shrubs will not be allowed, and the lands in this strip will be reclaimed with grass species. Due to the relatively narrow construction strip, the degree of impact is assessed as low.

Other expected impacts on flora in the area of the investment project during the construction of the site are possible erosion and secondary soil compaction as a result of the construction and transport activities and impact on vegetation cover result of generated dust emissions from construction and transport activities.

The possible impacts on fauna as a result of the construction of the gas pipeline are: disturbance of species as a result of all types of construction activities, direct destruction of individual animals as a result of construction activities, loss and deterioration of habitat as a result of clearing the construction site and excavation works, fragmentation of habitats and isolation of populations as a result of clearing and shaping of excavations. The timely and correct application of mitigating measures, such as carrying out construction outside the breeding season, will lead to a reduction in the significance of the impacts, with the result that the expected residual effects can be assessed as of low and moderate significance.

During the operation, no activities are envisaged which are a prerequisite for the occurrence of significant negative impacts on the flora and fauna in the area of the investment project.

IV.1.9. Tangible assets

With regard to tangible assets, a positive impact is expected both during construction and during operation, as the new facility, part of the gas transmission network of the Republic of Bulgaria, will be built. The pipeline will favour the development of the region and will have a direct and positive impact on the security of natural gas supply.

IV.2 Impact on elements of the National environmental network, including those located near the investment project

The route of the investment project falls within the boundaries of the protected area BC0002009 Zlatiyata, a protected area under Directive 79/409/EEC on the conservation of wild birds, adopted by Order No ПД - 548/05.09.2008. The envisaged activities for the construction of the gas pipeline will be carried out within the construction strip, coinciding with the easement of the pipeline provided for the establishment and will comply with the restrictions provided for in the order.

The areas closest to the investment project are protected areas:

- Protection area BC0000614 Ogosta River, protected as per Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora, approved by Council of Ministers

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

No 811/16.11.2010 (promulgated in the State Gazette (SG) No. 96 of 7 December 2010, amended, SG No. 67 of 13 August 2021) which is located about 500 m east of a section of the gas pipeline`s designed route close to the village of Kriva Bara, Kozloduy Municipality;

- BC0000594 Bozhi Most - Ponora, a protected area under Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora, adopted by Order No ПД-262 / 31.03.2021, located at about 3500 m southwest of PF Chiren 3 at the underground gas storage facility Chiren within the territory of the village of Chiren, Vratsa municipality.

Given the limited territorial scope of the impacts only in the construction strip and the remoteness of the two zones, no impacts on them from the construction and operation of the facilities are expected.

IV.3 The expected consequences arising from the vulnerability of the investment project to the risks of major accidents and/or disasters.

During the construction of the investment project, the potential risk of accidents and/or disasters can be classified as:

- Risks of labour traumatism;
- Risk of natural disasters: fire, floods, extremely high or low temperatures, intense rainfall, earthquakes;
- Risk of non-compliance with design-related solutions, the technology and organization of the construction works;
- Environmental risks: damages to the environment due to the release of harmful emissions, wastewaters, general waste and harmful radiation.

During the construction of the facilities within the scope of the IP, technical gases will be used - oxygen, argon, carbon dioxide in small, transportable containers. As a result of their use, most accidents at work can occur with the individuals working with these gases on the work site itself, but not in any areas outside of this zone.

Reducing the risk of accidents during construction can be achieved by developing a “Safety and Health Plan” and its implementation by the technical staff under the guidance of the Occupational safety coordinator, the Technical manager and Construction supervisor. Given the requirements of the current legislation in the country, this is legally required and such a plan shall be prepared in the process of developing the technical design.

The necessary measures to ensure trouble-free operation of the pipeline, the prevention and response to incidents and emergencies are related to:

- Selection of appropriate construction solutions;
- Solutions for corrosion protection;
- Solutions aimed at excluding equipment depressurization and emergency discharges of hazardous substances;
- Solutions aimed at preventing the development of accidents and at locating the discharge of dangerous substances;

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- Systems for automatic regulation, locking, signalling and other means of ensuring safety;
- Solutions aimed at ensuring explosion safety, etc.

The development of an emergency plan is envisaged (plan for rescue and emergency - recovery activities) of the gas pipeline, the purpose of which is to create an organization for dealing with disasters and accidents and technical support of rescue and emergency - recovery activities. This plan will provide for setting up the measures in the event of natural disasters such as earthquakes, floods, snowfalls, etc., as well as production-related accidents including the release of natural gas.

IV.4 Type and nature of the impact (direct, indirect, secondary, cumulative, short-lived, medium and prolonged, permanent and temporary, positive and negative)

An assessment of the type and nature of the impacts was carried out using the following methodology:

- *Implementation phase of the investment project:*

S construction, *S* operation

- *Type of the impact:*

S positive, negative

S direct, indirect

- *Nature of the impact:*

S probability of impact - there is probability, no probability,

S degree - low, medium, high,

S spatial scope - easement of the pipeline (Investment Proposal), easement of the pipeline and the area around it (area of the Investment proposal), local (L), regional (P), national (H);

S expected occurrence - expected or not expected

S duration - short-lived, medium or prolonged

S frequency - permanent, temporary

S and reversibility - reversible or irreversible,

S intensity - low or high intensity

S complexity of impact - cumulative.

IV.4.1 Population and human health

Phase: Construction

Type of impact: The impact on the contractors during the works is expected to be negative, direct.

Nature of the impact: There is a possibility of a negative impact on the contractors of the works, which is expected to be of a low degree with a spatial scope within the easement of the pipeline which is expected to occur only during construction. It is short in duration, temporary in frequency and

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

is reversible, with a low degree of intensity and no complexity of the impact. No cumulative effect is expected.

Phase: Exploitation

There is no expected impact on the health of workers as well as on the health of the local population.

IV.4.2 Cultural heritage

Phase: Construction

Type of impact: Positive, direct and indirect impacts are expected during the construction of the investment project.

Nature of the impact: There is a possibility of an impact expected to be of a low degree, with a spatial scope within the easement of the pipeline and the area around it (area of the investment project). It is expected that this impact will occur only during the construction works. Its duration will be short-term and prolonged; temporary in frequency and reversible with a low degree of intensity. No impact complexity is expected (with no cumulative effects).

Phase: Exploitation

Type and nature of impact: No impact is expected during the exploitation of the facility on any archaeological immovable cultural property and the respective protection zones.

IV.4.3 Climate. Ambient air

Climate

Phase: Construction

Type and nature of the impact: No climate impact is expected during the construction works

Phase: Exploitation

Type and nature of the impact: No impact on the climate is expected during the exploitation of the facility

Ambient air

Phase: Construction

Type of impact: During the construction of the pipeline, some negative direct impacts within the easement related to the operation of construction equipment and transport machinery are expected.

Nature of the impact: There is a probability of occurrence of an impact expected to be of a low degree, with a spatial scope within the easement of the pipeline; it is expected to occur only during construction works and is short-term in duration, periodic in frequency and is reversible, with a low degree of intensity and no complexity of the impact.

Phase: Exploitation

Type of impact: During the operation of the investment project, negative direct and indirect impacts are expected within the easement of the pipeline related to the vehicles with which the route will be bypassed.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

Nature of the impact: An impact is likely to occur, which is expected to be of negligible extent, occurring within the easement of the pipeline; it is expected to occur only during bypassing the route. It is short in duration, periodic in frequency, temporary and reversible with a negligible degree of intensity and no complexity of the impact. No cumulative effect is expected.

IV.4.4 Waters

Surface waters

Type of the impact: During the construction of the investment project, negative direct impacts on surface water related to the crossing of water bodies and the use of water for hydrotest are expected to occur. The implementation of the investment project is not expected to lead to the deterioration of the ecological and chemical status of surface water bodies within the scope of the IP.

Nature of the impact: There is a probability of occurrence of an impact which is expected to be of negligible extent, with a local spatial scope. It is expected to occur only during construction works; it is short in duration, periodic in frequency and is reversible, with a low degree of intensity and no complexity of the impact. No cumulative effect is expected.

Groundwaters

Type of the impact: During the construction of the investment project, negative direct impacts on the groundwaters are possible.

Nature of the impact: There is a probability of occurrence of an impact on groundwaters that is expected to be of a negligible extent, with a local spatial range. It is expected to occur only during construction works; is short and temporary in duration, is periodic in frequency and is reversible, of low intensity and no complexity of the impact. No cumulative effect is expected.

IV.4.5 Soils

Phase: Construction

Type of the impact: During the construction of the investment project, negative direct impacts on the soils within the easement of the pipeline are expected from the activities described above.

Nature of the impact: It is expected that a low impact may occur, with a spatial scope limited to the easement of the pipeline. It is short-term in duration, temporary and permanent in frequency, reversible, with a low degree of intensity; no complexity of the impact is expected. No cumulative effect is expected. After appropriate reclamation activities, the now practiced manner of permanent use will be restored.

Phase: Exploitation

Type and nature of impact: During operation, no impact on the soils is expected from the investment project.

IV.4.6 Subsoils

Phase: Construction

Type of the impact: During the construction of the investment project, negative direct impacts of mechanical disturbance of the geological environment are expected to occur.

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

Nature of the impact: There is a possibility of the occurrence of an impact from mechanical disturbances of the geological environment, which is expected to be of a low degree, with a local spatial scope - within the scope of the construction strip around the route of the gas pipeline; it is expected to occur only during construction works, is short-term in duration, temporary in frequency and is reversible; low in intensity and with no complexity of the impact. No cumulative effect is expected.

Phase: Exploitation

Type and nature of impact: During operation, no impact on the subsoils from the investment project is expected.

IV.4.7 Landscape

Phase: Construction

Type of the impact: Negative direct and indirect impacts on the landscape are expected during the construction of the investment project.

Nature of the impact: There is a possibility of occurrence of an impact which is expected to be of negligible extent, with local spatial scope. It is expected to occur only during construction works, is short in duration, temporary in frequency and is reversible because of the reclamation measures envisaged; with a low degree of intensity and no complexity of the impact. No cumulative effect is expected.

Phase: Exploitation

No impact on the landscape is expected during the exploitation phase.

IV.4.8 Biodiversity, with a particular focus on species and habitats subject to conservation of the protected zones designated by the National Ecological Network. Flora and fauna. Protected areas

Phase: Construction

Type of impact: The impact on flora and fauna, incl., in the protected zones, during construction is expected to be negative, direct and indirect.

Nature of the impact: There is a possibility of a negative impact, which is expected to be of a low degree, with a local spatial scope (within the easement of the pipeline and the area around it); it is expected to occur during construction works, short in duration, temporary in frequency and of low intensity and reversible; no complexity of the impact is expected.

Phase: Exploitation

Type of the impact: The impact on the flora and fauna, incl., in the protected zones during operation is expected to be negative, direct and indirect.

Nature of the impact: There is a possibility of occurrence of an impact which is expected to be of a low degree, with a local spatial scope (within the easement of the pipeline and the area around it), it is expected to occur during the repair works and maintenance of the easement, to be of short duration, temporary and reversible and of low intensity. Complexity of the impact is not expected. No cumulative effect is expected.

Protected zones

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

Type and nature of the impact: No impact on any protected zones is expected from the construction and exploitation of the investment project.

IV.4.9 Tangible assets

Type of the impact: The impact on the tangible assets during the construction works and the exploitation of the facility is expected to be positive and direct.

Nature of the impact: There is a possibility of a positive impact, which is expected to be low to high, with a spatial scope within the easement of the pipeline. It is expected to occur during construction works and the exploitation of the facility; long-lasting in duration, constant in frequency and irreversible; it is not intense and no impact complexity is expected. No cumulative effects are expected to occur.

IV. 5 Extent and spatial scope of the impact - geographical area; affected population; settlements (name, type - town, village, resort village, size of the population likely to be affected, etc.).

The investment project is located in the geographical area of Northwestern Bulgaria, the Vratsa region. The extent and spatial coverage of the impact from the construction works and exploitation of the facility, discussed in Section IV.4, are expected to be within the easement of the pipeline and the area around it (Investment Project Area). The implementation of the investment project will not affect (exert an impact) the population in the settlements located nearby.

IV.6 Probability, intensity, complexity of the impact.

According to the impact assessment methodology, proposed in Section IV.4, the probability, intensity and complexity of the impact are the criteria for assessing the nature of the impact. The expected impacts on the population and on human health, the biodiversity, its elements and protected areas, subsoil, soil, water, air and climate, tangible assets, cultural heritage and landscape, during the construction and operation of the investment project - including the probability, intensity and complexity of the impact - are discussed in Section IV. 4.

IV.7 Anticipated occurrence, duration, frequency and reversibility of the impact.

According to the impact assessment methodology, proposed in Section IV.4, the expected occurrence, duration, frequency and reversibility of the impact are the criteria for assessing the nature of the impact. The expected impacts on the population and human health, the biodiversity, its elements and protected areas, subsoil, soil, water, air and climate, tangible assets, cultural heritage and landscape during the construction and operation of an investment project - including the expected occurrence, duration, frequency and reversibility of impacts - are discussed in Section IV.4.

IV.8 The combination with impacts from other existing and/or approved investment projects.

At this stage of the investigation process, no other investment proposals have been identified to have a

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

significant cumulative impact connected with the realization and launching into exploitation of the gas transmission pipeline.

IV.9 Possible effective reduction of the impacts

Section IV.11 discusses measures to reduce the negative impacts on the environment and human health from the implementation of the investment project.

IV.10 Transboundary impacts

The implementation and exploitation of the investment project will not lead to impacts on environmental components of any transboundary nature.

V.11 Measures to be included in the investment proposal relating to avoiding, preventing, reducing or compensating for the possible significant negative impacts on the environment and on human health.

In order to avoid, prevent, reduce or compensate for the possible significant negative effects on the environment and on human health, the following measures should be taken during the construction works on the investment project:

Ambient air

In order to protect the air quality, it is necessary to implement the investment project with the inclusion of the following measures targeted at mitigating the effects on ambient air in the area of the construction strip, temporary sites and at the crossings of roads, railway infrastructural elements and rivers:

During the construction works

- During the processes of loading and unloading the various building materials: compliance with the requirements of Art. 70 of Ordinance 1/2005 on emission limit values for harmful substances (pollutants) emitted into the atmosphere from sites and activities having stationary emission sources;
- State of the art logistics in terms of building the design components;
- Strict adherence to the sequence of construction activities according to the construction schedule;
- Prohibition of construction equipment engines working in the idle mode (during downtime);
- Coordination of the transport scheme with local municipalities and mayoralities, in order to limit the passage of construction machines and equipment through the settlements;
- The provided construction equipment and vehicles must meet the requirements of Ordinance No 10/2004 (State Gazette 11/2004) on the terms and conditions for the type approval of internal combustion engines for non-road machinery with regard to pollutant emissions.

During normal exploitation

- Strict adherence to the technological prescriptions when performing inspections/cleaning with intelligent devices (PIG) and service/repair activities;

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

- Periodic vocational training and assessment of the skills of the supporting staff in carrying out the above-described activities.

Surface and groundwaters

In order to minimize these impacts, it is advisable that the passages through the water bodies be carried out within the periods of minimum water flow levels, anti-erosion measures be taken, the generated waste and excavated land masses be properly stored and subsequently treated, and the construction and transport equipment used must be in good technical condition to prevent any possible pollution of any surface waters with petroleum products.

All water bodies affected by the activities of the construction of the pipeline will be restored to their original form.

In order to prevent pollution of the groundwaters in the area of the investment project it is necessary to observe the technological discipline when carrying out the undertaken construction activities.

In order to prevent and mitigate the adverse impacts on surface and groundwaters basins from the implementation of the IP, the project and its implementation shall be in accordance with the measures specified in the opinion of the Danube Region directorate`s database presented as follows:

A: Prohibitions and restrictions in RBMP related to the planned activities

Measure (code)	Name of the measure	Actions to implement the measure	Action (code)
PM_2	Protection of groundwater chemical composition against pollution and deterioration	2. Prohibition of activities leading to the discharge of dangerous substances into the groundwaters	PM_2_2
GD_1	Prevention of the discharge of priority substances into the groundwaters	2. Prohibition or restriction of activities which increase the risk of direct or indirect disposal of priority or hazardous substances or other contaminants into the groundwaters, including the detection of groundwater at the surface by seizing deposits and soils covering the water basin (body)	GD_1_2
HY_7	Improving the hydromorphological status of rivers	Prohibition of any violations of the natural condition of the beds, the banks of the rivers and the coastal floodplains,	HY_7_5

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

		with the exception of activities for deepening the fairway and correction of the riverbed to ensure/improve safe navigation in the common Bulgarian-Romanian section of the Danube River and flood protection activities as well as other measures in accordance with the current legislation.	
DP_2	Reduction of diffuse pollution from industrial activities	8. Prohibition of washing and servicing of vehicles and equipment in coastal floodplains and adjacent areas and reservoirs.	DP_2_8
PM_9	Prevention of water deterioration from projects and activities at the stage of investment proposals	2. Preventing the implementation of investment proposals leading to a negative change in the status of the water basins (bodies)	PM_9_2

B: Other measures in the RBMP to be considered when implementing the planned activities

Measure (code)	Name of the measure	Actions to implement the measure	Action (code)
DP_11	Implementation of environmental practices or best available techniques to limit the discharge of polluting substances to the groundwaters	1. Applying environmental practices or best available techniques to limit the discharge of polluting substances to the groundwaters	DP_11_1
DP_2	Reduction of diffuse pollution from industrial activities	3. Landfilling of production waste in accordance with the waste treatment requirements	DP_2_3

In the case of negative impacts on the water bodies by the envisaged activities within the meaning of Art. 46, par. 1, item 1, item “b” of the Waters Act, the necessary measures shall be taken to issue a permit for the use of a given water body, except in the cases of Art. 46. par. 5 of the above quoted law.

In connection with the implementation of the investment project the measures quoted in the Water act will be observed as follows: In order to protect the harmful effects of excess waters - flood protection

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

and protection of the beds and banks of rivers from erosion - it is necessary to comply with the prohibitions in Art. 143, items 1, 2, 3, 4 and 5 of the Waters act: the violation of the natural state of the beds, the banks of rivers and the coastal flood strips: the decrease in the conductivity of river beds, including through barrages and thresholds, without a corresponding permit: the use of river beds as landfills, land and rock masses: carrying out constructions over the covered river sections; the storage of materials which, to a great extent, can increase the destructive power of excess waters during floods.

In order to protect the coastal floodplains and the land belonging to the reservoirs, the provisions of Art. 134, item. 1, items 3 and 4 of the Waters Act: storage of pesticides, landfilling and waste treatment: construction of farm and residential buildings: washing and servicing of transport and other equipment.

In **order** to protect **the** groundwaters from pollution, the prohibitions in Art. 118a, Art. 1, items 2, 3 and 4 of the **Waters act** will be taken into account: for **purification** incl., the disposal of priority substances which may lead to indirect discharges of pollutants into **the** groundwater; other activities on the surface and in the body of groundwaters which may lead to the indirect disposal of priority substances into **them**; the use of materials containing priority substances in the construction of structures, engineering and construction facilities, etc., where **they may get into contact, or a contact with the** groundwaters is **or is possible to occur**.

Landscape

The mitigating measures that need to be taken in order to prevent any damages to the landscape in the area are mainly limited to the timely restoration of the affected areas (appropriate biological restoration with the use of suitable local plant species) and when clearing the construction site of trees and shrubs the decisions set out in the investment project shall be observed.

Subsoils

No further mitigating measures are necessary to prevent or to minimize the expected impacts.

Soils

The main measures taken to minimize the expected negative effects may, in general, be reduced to the following:

- Preservation of the humus substrate, its separation from excess land masses, subsequent disposal and careful storage of the same when carrying out excavation works within the boundaries of construction sites for permanent facilities;
- The excavation area shall be limited to a minimum, following excavation reclamation procedures;
- When clearing the construction sites of trees and shrubs, the requirements of the design should be followed in order to guarantee minimum dimensions of the affected areas, and the subsequent backfilling of the excavations are to be carried out in reverse order to restore the construction of the soil profile and achieve the maximum effect of the accompanying biological reclamation (grassing);

Design and construction of site

Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in the area of Butan village

- Preventing construction machinery from entering the site for at least 1-3 days after a long and intense rainfall;
- Construction activities should be planned for a suitable season characterized by the minimum soil moisture values in Bulgaria; the duration of the impact to be minimized / optimized - i.e., to avoid unjustified movement of construction equipment and vehicles;
- Timely reclamation of damaged areas (appropriate biological recultivation, use of native plant species/local non-invasive greenery) and use of appropriate construction equipment to prevent secondary soil compaction and subsequent erosion;
- Observance of the adopted technological discipline.

Flora and fauna and protected zones as per the “Natura 2000” Ecological Network

Fauna

In order to mitigate the identified impacts on the local fauna, the following measures need to be taken:

- Compliance of all undertaken construction activities with the breeding season/hibernation of the typical (for the respective area of the investment project) representatives of the local fauna, determined each year is by the specific weather conditions;
- Timely restoration/reclamation of the affected areas (appropriate biological reclamation using plant species suitable/native for the area);
- When clearing the construction site of trees and shrubs, the requirement of the project, set out in the investment project, should be closely observed.

Flora

The mitigation of the identified impacts on the local flora can be achieved by the application of the following specific measures:

- Timely restoration/recultivation of the affected areas (appropriate biological reclamation with the use of suitable plant species, native for the area);
- When clearing the construction site of trees and shrubs, the requirement of the project, set out in the investment project, should be closely observed;
- The above-mentioned measures shall be taken in order to mitigate the expected impacts and which are targeted at limiting soil erosion and soil compaction.

In connection with the possible impacts on the protected zones as per the Natura 2000 Ecological Network, the impact on the habitats of protected species within the protected zone will be the same as that identified above as an impact on flora and fauna. Therefore, the mitigation measures proposed above to limit the impact on flora and fauna are also applicable in order to mitigate the impact on habitats and species subject to conservation in the protected zones.

Harmful physical factors - noise

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

Machines and equipment working outdoors should meet the requirements of the Ordinance on the Essential requirements and Conformity assessment of Machines and equipment working in the outdoors with regard to the noise emitted thereby (State Gazette 11/2004, EC/14/2000).

Cultural and historical heritage

Conducting preliminary archaeological investigations for the conservation of sites of cultural heritage and archaeological observations during the construction of the investment proposal.

V. Public interest in the investment project.

To the notification of regarding the investment project which is filed with the Ministry of Environment and Water resources under Ref. No. OBOC - 43/12.08.2022 documents have been attached proving the announcement of the investment proposal on the website of the contracting authority and through the mass media, or in any other appropriate way according to the requirements of Art. 95, par. 1 of the EPA as follows: Excerpt from a publication on the website of the contracting authority; Excerpt from a publication in a local regional newspaper. At the time of submission of this information, Bulgartransgaz EAD has not received any requests, proposals or questions regarding the investment project.

Design and construction of site
Gas pipeline connecting Chiren UGS to the existing gas transmission network of Bulgartransgaz EAD in
the area of Butan village

List of appendices:

- 1. Coordinate registers for the entire investment proposal**
- 2. Maps (kmz file) indicating the route of the pipeline and the location of the enterprises posing a high and low risk potential;**
- 3. Geographical situation at the sites of PF Chiren 3 with an indicated road approach and PF Butan;**
- 4. Geographical situation in a scale of 1:25 000 in pdf and digital form – 2 drawings;**
- 5. Natural gas safety data sheet;**
- 6. Payment order for the due fee.**