

# GAS INTERCONNECTOR POLAND-SLOVAKIA

## GENERALLY COMPREHENSIBLE FINAL SUMMARY (NON-TECHNICAL SUMMARY)

**Assessment Report  
under Act no. 24/2006 Coll.  
on the assessment of environmental impacts**



PROPOSER



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## 1 NAME OF THE PROPOSED ACTIVITY

**Poland - Slovakia Gas Interconnector**

## 2 BASIC INFORMATION ON THE PROPOSED ACTIVITY

### *Proposer*

eustream, a.s.

Votrubova 11/A, 821 09 Bratislava

### *Purpose of the proposed activity*

The assessed investment activity represents the construction of the new interconnecting gas pipeline from Poland to the compressor station in Veľké Kapušany. The DN1000 gas pipeline Republic of Poland – Slovak Republic (hereinafter referred to as the PL-SK pipeline) is a project of European importance, being also classified among the PCI projects labelled 6.2.1 Poland – Slovakia interconnection. This project represents the construction of the first high-pressure interconnecting gas pipeline between the Republic of Poland and the Slovak Republic, which is to connect the national transmission systems of both countries.

The main objective of the assessed construction is the higher security of gas supply.

The PL-SK pipeline will also contribute to:

- Diversification of natural gas sources and the opportunity to reduce the level of dependence on the supply of this energy source from the Russian Federation.
- Improvement of the technical reliability of natural gas supply to the customers in the form of diversification of gas import routes (southern part of Poland and the eastern part of Slovakia).
- Opportunity to build and connect the new gas storage facilities in the region and to improve the availability of gas in the region.
- Utilisation of the free capacity in the Slovak transmission system. The implementation of major pipeline investments in Europe could cause a decline in the use of the Slovak transmission system and the emergence of new free capacities.
- Support for the integration process of gas markets in the EU in the form of creating conditions for the interstate gas transit and building a competitive gas market.
- Opportunity to access the future unconventional natural gas sources in the Republic of Poland.

Pursuant to Act no. 24/2006 Coll. on the assessment of environmental impacts, the activity is included in Chapter 2 - Energy Industry, item 16. Long-distance gas pipelines with the pipe of 500 mm diameter or greater, or 1 MPa pressure or greater, or 40 km length or greater, Part A - Mandatory evaluation. All alternatives exceed the threshold value.

### 3 TERRITORY AFFECTED BY THE ACTIVITY

Region: Prešov, Košice

District: Medzilaborce, Humenné, Michalovce, Snina, Sobrance,

Cadastral area: Palota, Výrava, Svetlice, Zbojné, Čabalovce, Rokytov pri Humennom, Jabloň, Koškovce, Hankovce, Ľubiša, Veľopolie, Udavské, Kochanovce, Lackovce, Hažín n/Cirochou, Humenné, Ptičie, Chlmec, Vyšná Jablonka, Nižná Jablonka, Oreské, Staré, Zbudza, Nacina Ves, Petrovce n/Laborcom, Michalovce, Suché, Pozdišovce, Šamudovce, Vrbnica, Lastomír, Žbince, Sliepkovce, Budkovce, Draňov, Krišovská Liesková, Vojany, Čierne Pole, Veľké Kapušany, Kapušianske Kľačany, Krásnovce, Čičarovce, Vysoká nad Uhom, Pavlovce nad Uhom, Lesné, Moravany, Laškovce, Zemplínska Široká, Palín, Stretava, Stretavka, Hostovice, Čukalovce, Pčoliné, Snina, Stakčín, Kolonica, Lodomírov, Michajlov, Šmigovec, Dúbrava, Ruský Hrabovec, Inovce, Beňatina, Choňkovce, Koňuš, Priekopa, Vojnatina, Tibava, Orechová, Sejkov, Jenkovce, Záhor, Bežovce, Lekárovce, Kristy, Tašuľa.

Parcel numbers: Will be specified later in the corresponding level of the project documentation

The overview at a scale of 1:200.000 is shown in Fig. 1.

### 4 PROJECT DESCRIPTION

The proposed route is based on creating the shortest connection between the crossing of the PL-SK border and the compressor station Veľké Kapušany (hereinafter the “KS Veľké Kapušany”). The proposed route is to ensure minimal interference with the sensitive areas in terms of protected areas of all categories, while utilising flat terrain and minimising passages through steep slopes. All alternatives envisage the construction of the border take-over station (BTOS) in the cadastral area of the Výrava municipality.

The start of the pipeline construction is planned in March 2018 and the start of trial operation in September 2019.

#### *Technical solution*

The route crosses the state border in the area of the Lupkovský Pass. The route then continues in the Slovak section across two regions (Prešov and Košice) and is terminated in the area of KS Veľké Kapušany.

The scope of the project in the Slovak Republic includes:

1. gas pipeline with the maximum operating pressure of 7.35 MPa from KS Veľké Kapušany to the border take-over station in the Výrava cadastral area,
2. gas pipeline with the maximum operating pressure of 8.4 MPa from the border take-over station in the Výrava cadastral area to the Slovakia – Poland state border at the point of the state border crossing in the cadastral area of the Palota municipality,
3. nominal diameter of the gas pipeline – **1000 mm**,
4. maximum transmission capacity in the SK - PL direction is **16.788 million Nm<sup>3</sup>/d**
5. maximum transmission capacity in the PL - SK direction is **13.842 million Nm<sup>3</sup>/d**
6. construction of the necessary pipeline infrastructure:

- ✓ border take-over station (BTOS) - it serves for the commercial metering of the handed-over/accepted amount of gas
- ✓ turbosets (TuS) - installed at KS Velké Kapušany primarily for the needs of the PL-SK pipeline
- ✓ optical cable (OC) and transmission equipment - it serves for data transmission and pipeline control
- ✓ corrosion protection (CP) - it serves for protecting the pipeline from corrosion, in particular the active cathodic protection and construction of cathodic protection stations (CPS)
- ✓ input-output cleaning chambers (IOCC) - locations allowing inserting and recovering the cleaning and diagnostic devices
- ✓ isolating valves (IV) - locations where it is possible to close the pipeline in the event of planned maintenance or malfunctions along the route
- ✓ LV and HV connections - power supply systems for IV, CPS and BTOS facilities
- ✓ PRS, SRTP, data transmission - operating heavy-current distribution wiring, control and signalisation of actuators, data transmission
- ✓ fencing and alarm system for IV and BTOS (EAS-CCTV)

The construction period may be divided to preparatory work and actual construction. The preparatory work involves the creation of a working strip, to be used to make the route passable for construction machinery, mechanisms and distribution of pipes. The width of the working strip is max. 40 m on the plots of arable land, 36 m on grasslands and 23 m in forests. The removal of the vegetation layer, cutting of shrubs and trees, including the removal of roots and surface levelling will take place inside the working strip width. In addition to creating the working strip, the temporary road exits and access roads will be built for the construction needs, including permanent access roads for the needs of the pipeline's operating facilities. The cutting of shrubs and trees will take place approximately one year before the actual construction. The length of the preparatory work per section will be approximately 2-3 weeks. To be followed by the topsoil stripping on agricultural land and topsoil stripping in forests, which will be stored separately from other excavated soil.

A trench will be excavated during the construction for the gas pipeline with the average depth of 2.0 m, minimum trench bottom width of 1.4 m and the required coverage of 1.0 m. The inclination of the trench walls will be determined depending on the soil composition. The backfill of the pipeline will take place following the complete inspection of welds and pipeline insulation. The topsoil will be spread over the levelled terrain. The construction itself will take at least 4-5 weeks.

The routing of the pipeline across the slopes of higher inclination and with river crossings will require technically more demanding solutions. The passages through water courses will be implemented by open excavation with a lowered horizontal cross-section of the pipeline (sag pipe) and by using the weight of heavy sand bags or concrete blocks to secure it under the riverbed. With larger rivers, the use of HDD (horizontal directional drilling) technology is also envisaged. This trenchless technology eliminates the risk of disrupting the protecting levees of major rivers. The horizontal directional drilling technology involves constructing a pipeline section on the surface and its subsequent pulling into the hole drilled under the riverbed.

### ***Pipeline routing alternatives***

The subject of the assessment of environmental impacts is the PL-SK pipeline, which under the scope of the assessment is proposed in three alternatives: Alternative I, Alternative II and Alternative III. The above alternatives were also assessed in the plan (10/2014). The gradual survey of the area in question resulted in the adjustments of original alternatives to such an extent that the modifications of the alternatives were proposed practically along their entire length. The modified alternatives are based on the original ones, having the following designations: Alternative 1A, Alternative 2A, Alternative 3A. A total of 6 alternatives were assessed, which are presented in the attached graphic.

## 5 SPATIAL CONDITIONS

All components of the natural environment of the assessed area have been elaborated in detail in the Assessment Report. Only the facts directly affecting the routing of the pipeline are stated in the final summary.

The fauna, flora, habitats and, particularly, the protected areas under the European or national legislation in the field of nature and landscape protection clearly represent the most important environmental aspects of the assessed activity.

The following areas of the national system of protected territories were identified in the concerned area: 5 national nature reserves (NNR), 15 nature reserves (NR), 2 protected areas (PA), 2 natural monuments (NM), 3 protected landscape areas (PLA), 1 national park (NP).

From among the areas belonging to Natura 2000, there are 6 declared protected bird areas (PBA) and 21 areas of European importance (AEI). Moreover, near the state border on the Polish side there are three Polish areas covered by Natura 2000.

The geological composition of the area, the terrain morphology, hydrogeological conditions and high rainfall resulted in the formation and evolution of geodynamic phenomena, of which the most widespread in the assessed area are the slope deformations. The erosion and weathering of rocks applies to a lesser extent.

Based on the data from the map of slope deformations (<http://mapserver.geology.sk/zosuvy>), the active landslides are located in the following sections:

Alternative	Localisation in km	Length in m	Scope of impact
1	32.100 - 32.300	200	direct passage through active landslide
1A	31.400 - 31.600	200	direct passage through active landslide
V2	39.850 - 40.000	150	direct passage through active landslide
V3	5.800 - 6.200	400	active landslide located at a distance of 60 m west of the route
	32.200 - 32.300	100	direct passage through active landslide
V3A	6.000 - 6.300	300	active landslide located at a distance of 60 m west of the route
	32.600 - 32.700	100	direct passage through active landslide

According to the registry of protected deposit areas and mining areas of the District Mining Office Košice, there occurs contact within the affected area with the protected deposit areas (PDA) and mining areas (MA) only in the case of alternatives 1, 3 and 2A. The alternatives 1A, 2 and 3A do not interfere with any PDA or MA.

The assessed area currently comprises a diverse range of soils that are mostly used as agricultural land predominantly for intensive agricultural activity.

Under the Act no. 220/2004 Coll. on the protection and use of agricultural land, as amended, according to which it is necessary to specifically protect the soil classified under BPEJ code in the first 4 groups (of the total of 9 groups). The assessed area is dominated by agricultural soils in BPEJ 5-9 groups, some of which are classified in the concerned area among the highest quality soils within the individual cadastral areas of the municipalities. The agricultural soils belonging to the 4<sup>th</sup> group are affected only minimally in the district of Michalovce in the cadastral areas of Drahňov, Pozdišovce and Laškovce, while those are only temporary land seizures.

There are no protected water management areas in the concerned territory, as defined by the Slovak Government Regulation no. 13/1987 Coll. on certain protected areas of natural water accumulation.

Pursuant to the Slovak Government Regulation no. 617/2004 Coll. establishing the sensitive areas and vulnerable areas, the surface water bodies flowing through the area are classified as sensitive areas in the southern part of the affected area.

The protection zones (PZ) of the following water sources (WS) are located in the corridors of the interconnector alternatives:

2<sup>nd</sup> level PZ of WS Wells 1, 2 (cad. area Rokytov pri Humennom)

2<sup>nd</sup> level PZ of WS Hankovce (cad. area Hankovce)

2<sup>nd</sup> level PZ of WS Bačka 1-2 (cad. area Lackovce)

2<sup>nd</sup> level PZ of WS Termoska (cad. area Oreské)

2<sup>nd</sup> level PZ of WS Lúky 6A, 6B (cad. area Chlmec)

2<sup>nd</sup> level PZ of WS Blaciny (cad. area Chlmec)

2<sup>nd</sup> level PZ of WS Rúbanisko 5A, 5B (cad. area Chlmec)

2<sup>nd</sup> level PZ of WS Jasenovská 1-3 (cad. area Chlmec)

2<sup>nd</sup> level PZ of WS Lastomír (cad. area Lastomír)

2<sup>nd</sup> level PZ of WS Snina (cad. area Snina)

2<sup>nd</sup> level PZ of WS Vh-16, HVZ-20 (cad. area Vojnatina)

2<sup>nd</sup> level PZ of WS HVZ 21, 22 (cad. area Tibava)

With various alternatives of the pipeline route, the pipeline will cross the water courses - Výrava, Laborec, Cirocha, Duša, Slepkovský kanál, Udoč, Pčolinka, Breznický potok, Uh, Čierna voda, Kruhovský potok, Veľké Revištia-Bežovce.

The gas pipeline will also cross the major water courses used for water management - Udava, Syrový potok.

The following bodies of water are located in the corridors of routes of pipeline alternatives:

- Chlmecký pond (cad. area Chlmec) - alternative 1, 1A, 3, 3A
- Pozdišovce water reservoir (cad. area Pozdišovce) - alternative 3
- Snina settling pit (cad. area Snina) - alternative 2

## 6 SUMMARY OF ENVIRONMENTAL IMPACTS OF THE CONSTRUCTION

The preparation of the Assessment Report included the evaluation of the impacts of the construction and operation of the pipeline, both positive and negative.

### Impacts on fauna, flora and their habitats

In reference to the technical description of the pipeline construction, the following impacts may be classified as potentially negative effects on flora, fauna and their habitats during construction:

- permanent seizure of habitats (construction of pipeline technical facilities);
- change in original habitats (temporary seizure along the pipeline route);
- temporary seizure and disruption of original habitats in a wider vicinity (construction yards, dumping areas, storage areas for construction material, construction roads);
- removal of the herbal, shrub and tree layer in the width of the working strip;
- disturbance of animals and their temporary expulsion from the concerned area (noise, vibrations, movement of construction equipment);
- reduction of foraging and reproductive habitats of animals;
- local change in habitat conditions;
- deterioration of living, particularly reproductive, conditions of organisms (air pollution by exhalations, excessive dust, contamination of surface water etc.);
- risk of killing the animals in the event of selecting inappropriate construction period or construction technologies;
- temporary partial disruption of migrations;
- pedocompaction and disruption of soil structure and soil stratification;
- changes in the soil edaphone structure in the forest communities;
- ruderalisation of habitats, spreading of expansive and invasive plant species;
- possible disruption of the hydrological mode of watercourses;
- risk of polluting the water courses in the event of emergency situations (leak of oil substances).

The habitats of national and European importance were identified in the concerned area. The significant impacts are expected in routing through the habitats of European importance Ls1.3 Ash-alder foothill alluvial forests, Lk5 High-herbal communities on moist meadows of the area of European importance Alúvium of Rieka River (SKUEV0049) with V2, V2A alternatives where, if the original routing is maintained, it is expected that they will be damaged, the riverbed will be partially regulated, which is a precondition for a lasting effect on their positive condition in the concerned area. The other location being Humenský sokol (NNR, SKUEV0050), where in the routes of V1A, V3, V3A alternatives there are habitats of European importance Pi5 Wild vegetation of *Alyssa-Sedion albi* coalition on shallow carbonate and base substrates, Tr1 Xeric grassy-herbal and scrub vegetation on calcareous substrates, Lk1 Lowland and foothill hay meadows, Sk1 Carbonate rock walls with slit vegetation, Ls5.1 Beech and fir-beech flowery forests, Ls5.4 Limestone beech forests, Ls3.1 Thermophilous sub-Mediterranean oak forests - they will be likely partially damaged, the permanent impact on their favourable condition is not expected in the concerned area, the most valuable habitats within the NNR will remain preserved.

Based on the expert opinion (Pčolová, Hlôška, 2015), it is possible to conclude that provided that the conditions defined in the cited document and chapter C.IV (AR) are observed, the implementation of the proposed activity will not result in the



extinction, respectively degradation of habitats of the national and European importance (except for the above) and these will be preserved in the area to a sufficient extent.

When removing the tree and shrub vegetation, on which there are invasive plants, it is necessary to follow the methodology for removing the invasive species, which was prepared by SNP SR in Banská Bystrica.

The potential negative impacts on the fauna, flora and their habitats during the operation may include the following:

- removal of shrub and tree woody vegetation in the width of 10 m along the pipeline route;
- disturbance of animals and their temporary expulsion from the concerned area (noise, vibrations, movement of people, or possibly equipment in this area);
- reduction of foraging and reproductive habitats of certain animal species;
- ruderalisation of habitats, spreading of expansive and invasive plant species;
- local change in habitat conditions;
- temporary partial disruption of migrations.

In the case of clearing cuts through non-forest arboreal-shrub vegetation (NFASV) and in forests, to leave these to self-regulation mechanisms, given the excellent rejuvenation ability of the vegetation it is expected that the vegetation will re-grow in a relatively short period of time. In less favourable habitat conditions, to use the additional planting of autochthonous species. It is possible to minimise the negative impacts on the flora and habitats by implementing clearing cuts in the maximum width of 10 m during non-vegetation and non-nesting season. To prefer to use of hedge trimmers, manual and chain saws over the use of heavy machinery. To use environmentally degradable lubricants and oils in the saws. The sawn individual trees and shrubs must not be moved away but left at the location, at the vegetation edges. To regularly monitor the condition of vegetation and the scope of any possible erosion areas and, subsequently, to implement the rehabilitation work. It will be necessary to pay increased attention to the possible occurrence of invasive plant species, to prevent them spreading to the undamaged parts of the habitat.

The handling strips in a deforested condition will facilitate the spreading and growth of ecotone species of birds and small ground mammals, as well as the types of open habitats, respectively habitats of initial succession stages. Invertebrates - increase in the share of euryecious and light-requiring species at the expense of shadow-requiring and stenoec taxa. Following the completion of the construction, the ungulates and large beasts of prey will adapt their daily biorhythm and spatial activity to the new conditions. They will use the deforested strip during daily migrations with reduced energy demands for moving around. With respect to the better foraging, the predators (owls and birds of prey) will increase the predatory pressure on the prey - for instance, the small terrestrial mammals initially react to deforestation and fragmentation by distinctly increasing the population density of general species (forest rodents). With the development of herbaceous and shrub layer, the share of the specialised species of terrestrial mammals (Soricidae) will gradually increase. Similarly, in a transient manner, the population density of songbirds nesting on the ground may increase in the herb or shrub layer.

### **Impacts on the territories of the national system of protected areas**

The most significantly affected during the construction will be:

### **NNR Humenský sokol**

The proposed activity in V3 alternative at 48.59 - 48.70 km crosses SE the edge of the NNR in the length of 114 m. The territory has the area of 241.50 hectares, the 5<sup>th</sup> protection level is in force in the area, the protection zone has not been declared. The area forms part of **SKUEV0050 Humenský sokol**, which goes beyond the NNR territory and its surface area is 286.61 hectares. By implementing the proposed activity, we may expect the disappearance of the portion of habitats on the SE edge of the area with gradual degradation (ruderalisation) of also adjacent habitats indirectly affected by the construction. It is possible to minimise the negative impacts of the construction with V3 alternative by moving the route 100 m in the easterly direction outside the NNP boundary, or by selecting another alternative. The other alternatives (V1, V1A, V3A) passing through this part of the assessed area are located at a sufficient distance (250 – 370 m) and the negative impacts on the NNR are not expected.

### **NNR Humenská**

The proposed activity in V1 alternative at 46.73 - 46.86 km crosses the W edge of the NNR in the length of 130 m, V3 in 47.07 - 47.23 km crosses the W edge of the NNR in the length of 160 m. The territory has the surface area of 70.37 hectares, the 5<sup>th</sup> protection level is in force in the area, the protection zone has not been declared. The area forms part of **SKUEV0206 Humenská** (the description of impacts on the AEI is provided in the respective part of the chapter), which goes beyond the NNR territory and its surface area is 215.80 hectares. By implementing the proposed activity, we may expect a partial damage to the habitats directly affected by the construction with gradual degradation of also adjacent habitats indirectly affected by the construction; the permanent impact on their favourable condition in the concerned area is not expected.

### **NR Ortov**

The proposed activity in the V1 alternative at 98.47 - 98.56 km crosses the NR in the length of 97 m, V2 in 109.78 - 109.89 km crosses the NR in the length of 110 m, V3 in 101.28 - 101.39 km cross the NR in the length of 110 m. The territory has the surface area of 14.85 hectares, the 5<sup>th</sup> protection level is in force in the area, the protection zone has not been declared. Although the proposed activity only interferes with the edges of the NR, by implementing the proposed activity we may however expect the disappearance of a portion of habitats directly affected by the construction with gradual degradation of a portion of the area. It is possible to minimise the negative impacts of the construction with alternatives V1, V2 and V3 by moving the route outside the NR, or by selecting V1A, V2A or V3A alternative that bypass the NR without negative impacts on the NR.

### **PLA Východné Karpaty**

In the alternative V1 the proposed activity crosses the PLA in the length of 4.85 km, V1A crosses the PLA in the length of 4.64 km, V2 crosses the PLA in the length of 5.19 km, V2A crosses the PLA in the length of 5.33 km, V3 crosses the PLA in the length of 4.85 km, V3A crosses the PLA in the length of 5.47 km. The territory has the surface area of 25,307 hectares, the 2<sup>nd</sup> protection level (zone D) is in force in the area, the protection zone has not been declared. A portion of the PLA overlaps with the area of the European importance **SKUEV0387 Beskyd** and with the protected bird area **SKCHVU011 Laborecká vrchovina** (the description of effects on these areas is provided in the relevant section of the chapter). The proposed activity crosses the PLA in the central part and by implementing it we may expect the disappearance of a portion of habitats directly affected by the construction with the gradual degradation of other habitats indirectly affected by the proposed activity. We expect

direct seizure of the European importance habitats: Ls5.1 Beech and fir-beech flowery forests, Ls5.2 Acidophilous beech forests, Ls4 Lime-maple scree forests, Ls 1.3 Ash-alder foothill alluvial forests. The implementation of the proposed activity will result in their partial damage, however given their adequate expansion throughout the territory, no lasting impact on their favourable condition is expected in the concerned area.

The impacts on the protected areas of the national system of PAs during the operation of the pipeline and technical facilities may be limited to the maintenance strip of 10 m width along the pipeline route, involving the removal of volunteer trees and shrubs inside this strip. The periodicity of such work is in 10-year intervals. The impacts on the PAs during the operation are identical with respect to fauna, flora and habitats, which are described in detail in Chapter C.III.7.

### Impacts on the territories of the European network of protected areas NATURA 2000

The following document was prepared for the purposes of assessing the impacts of the proposed activity on the territories of the European network of protected areas NATURA 2000: Assessment of impacts of the construction Gas Interconnector Poland - Slovakia on the NATURA 2000 territories under the EIA Report on the assessment of environmental impacts (Pčolová, Hlôška, 2015). The Methodology Guideline to the provisions of Articles 6(3) and 6(4) of the Directive on the conservation of natural habitats and of wild fauna and flora 92/43/EEC was followed in preparing the assessment.

Included in the assessment were the sites of the Community importance (SCI) and protected bird areas (PBA) within about 5 km distance from the assessed alternatives of the pipeline routes, respectively also those that go beyond this border but are found on the map sheet cut.

During the construction of the proposed activity, there will be direct and indirect impacts on the territories belonging to the NATURA 2000 network. The following tables include the assessment of the significance of impacts and their evaluation per individual alternatives.

**Table 1 Assessment of the impact significance**

Value	Term	Description
-2	significant negative impact	Excludes the implementation of the activity, respectively it can be implemented only in certain cases under § 38 section 4 of the Act no. 24/2006 Coll. (significant disruptive effect) up to liquidating for the habitat or population of the species, its substantial part, significant disruption of the ecological demands of the habitat or species, significant interference with the habitat or natural development of the species. Can not be eliminated.
-1	slightly negative impact	Limited (moderate) non-significant negative effect – does not exclude the implementation of the activity - somewhat disruptive effect on the habitat or population of the species, slight disruption of the ecological demands of the habitat or species, marginal interference with the habitat. It is possible to minimise it by the proposed mitigation measures.
0	zero impact	The project has no demonstrable impact.
+1	slightly positive impact	Slightly beneficial effect on the habitat or species population, slight improvement of ecological demands, slightly positive impact on the habitat or on the natural development of the species.
+2	significant positive impact	Significantly beneficial effect on the habitat or species population, significant improvement of ecological demands, significant positive impact on the habitat or on the natural development of the species.

**Table 2 Assessment of the significance of impacts on individual NATURA 2000 sites**

Natura 2000 site	Assessment of the impact significance of individual alternatives					
	V1	V1A	V2	V2A	V3	V3A

SKCHVU011 Laborecká vrchovina	-1	-1	-1	-1	-1	-1
SKCHVU002 Bukovské vrchy	0	0	0	0	0	0
SKCHVU035 Vihorlatské vrchy	-1	-1	-1	-1	-1	-1
SKCHVU037 Ondavská rovina	0	0	0	0	0	0
SKCHVU024 Senianske rybníky	0	0	0	0	0	0
SKCHVU015 Medzibodrožie	0	0	0	0	0	0
SKUEV0387 Beskyd	-1	-1	-1	-1	-1	-1
SKUEV0016 Košariská	0	0	0	0	0	0
SKUEV0763 Horný tok Výravý	-1	-1	-1	-1	-2	-1
SKUEV0011 Svetlica	0	0	0	0	0	0
SKUEV0014 Lásky	0	0	0	0	0	0
SKUEV0049 Alúvium Rieky	0	0	-2	-2	0	0
SKUEV0386 Hostovické lúky	0	0	-1	-1	0	0
SKUEV0385 Pliškov	0	0	0	0	0	0
SKUEV0229 Bukovské vrchy	0	0	0	0	0	0
SKUEV0230 Makovica	0	0	0	0	0	0
SKUEV0063 Ublianka	0	0	0	0	0	0
SKUEV0209 Morské oko	0	0	-1	-1	0	0
SKUEV0006 Latorica	0	0	0	0	0	0
SKUEV0205 Hubková	-1	-1	0	0	-1	-1
SKUEV0005 Drieňová	0	-1	0	0	0	-1
SKUEV0206 Humenská	-1	0	0	0	-1	0
SKUEV0050 Humenský Sokol	0	-1	0	0	-1	-1
SKUEV0250 Krivoštianka	-1	-1	0	0	-2	-1
SKUEV0231 Brekovský hradný vrch	0	0	0	0	0	0
SKUEV0235 Stretavka	-1	0	0	0	0	0
SKUEV0026 Raškovský luh	0	0	0	0	0	0
<b>Number of NATURA 2000 sites with significant negative impact of the activity (-2)</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>
<b>Number of NATURA 2000 sites with slightly negative impact of the activity (-1)</b>	<b>8</b>	<b>8</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>8</b>
<b>Number of NATURA 2000 sites with zero impact of the activity (0)</b>	<b>19</b>	<b>19</b>	<b>20</b>	<b>20</b>	<b>19</b>	<b>19</b>
<b>Spread</b>	<b>0.217</b>	<b>0.217</b>	<b>0.293</b>	<b>0.293</b>	<b>0.396</b>	<b>0.217</b>
<b>Standard deviation</b>	<b>0.465</b>	<b>0.465</b>	<b>0.542</b>	<b>0.542</b>	<b>0.629</b>	<b>0.465</b>

From among the territories belonging to the Natura 2000 network, the following areas will be directly affected by the construction and operation of the pipeline in all assessed alternatives: SKCHVU011 Laborecká vrchovina, SKCHVU035 Vihorlatské vrchy, SKUEV0387 Beskyd, SKUEV0763 Horný tok Výravý, SKUEV0049 Alúvium Rieky, SKUEV0386 Hostovické lúky, SKUEV0209 Morské oko, SKUEV0205 Hubková, SKUEV0005 Drieňová, SKUEV0206 Humenská, SKUEV0050 Humenský Sokol, SKUEV0250 Krivoštianka, SKUEV0235 Stretavka. Other areas are located outside the direct or indirect impacts.

For the majority of PAs specified below, the following **direct impacts of the alternatives** on the concerned area are expected:

- direct seizure of habitats,
- removal of herbal, shrub and also tree layer,
- construction activity – increased noise and dust,
- reduction of foraging and reproductive habitats of animals,
- local change in habitat conditions,
- ruderalisation of habitats, spreading of expansive and invasive plant species,

- pedocompaction – soil compaction by heavy machinery, change in the stratification of soil horizons, especially with forest soils,
- changes in the soil edaphone structure in forest communities.

To mitigate the negative impacts, there is a list of measures provided in the Chapter C.IV of AR that will significantly contribute to minimisation of the negative impacts on PBA and, at the same time, will allow for a relatively rapid recovery of the damaged parts of habitats.

### SKCHVU011 Laborecká vrchovina

The impacts on the main criteria species of the PBA are identified in the following table.

**Table 3 Impacts on main criteria species of SKCHVU011 Laborecká vrchovina.**

Scientific name of the species	English name of the species	Impact of the activity on the species
<i>Alcedo atthis</i>	Common kingfisher	Disruption of vertical earthen banks, and thus also nesting opportunities, of water courses crossed by the habitat route.
<i>Aquila pomarina</i>	Lesser spotted eagle	Disturbance in the nesting environment (forest habitats) during the construction - temporary and locally limited impacts on the fishing territories in the foothill of Laborecká vrchovina during the construction.
<i>Caprimulgus europaeus</i>	European nightjar	The biggest threat to the breeding populations comes with the removal of vegetation cover and destruction of the top soil horizon at microhabitats suitable for breeding and rearing of young during the construction.
<i>Crex crex</i>	Corn crake	It is particularly threatened by the loss of meadows, their drying and intense land management - the mortality of individuals will increase with the mechanised mowing of the pipeline's handling strip.
<i>Dendrocopos leucotos</i>	White-backed woodpecker	The population of this species will be negatively affected in particular by the disruption directly associated with the cutting down of trees and removal of dying or dead wood in the concerned forest areas. This intervention will also cause local degradation and fragmentation of nesting and trophic habitats.
<i>Dryocopus martius</i>	Black woodpecker	The cutting down of old trees in connection with the construction of the pipeline will reduce the local topical and trophic opportunities for this species in the immediate vicinity.

Scientific name of the species	English name of the species	Impact of the activity on the species
<i>Ficedula parva</i>	Red-breasted flycatcher	The local loss of nesting opportunities caused by the cutting down of old trees as potential nesting habitats (natural nesting cavities). Reduction and succession changes in foraging habitats (vegetation and animal components) as a result of direct construction activity (pedocompaction, micro-climatic changes, drying, anthropically conditioned changes in the soil profile, changes in the composition of species and time-space distribution of the edaphon) and thus also foraging offering.
<i>Lanius collurio</i>	Red-backed shrike	Local loss of shrub habitats with the incidence of bigger insects of the body length over 20 mm.
<i>Lullula arborea</i>	Woodlark	Loss of suitable nesting habitats in direct connection with the construction activities.
<i>Milvus milvus</i>	Red kite	Transitional and time-limited disturbance in the forest environment.

<i>Picus canus</i>	Grey-headed woodpecker	Cutting of old trees in the parts of forests directly affected by the construction activity - reduction of nesting opportunities. Removal of dead wood and humus layer will cause transient reduction in the foraging base (e.g. liquidation of anthills), which will be compensated by the preserved habitats in the vicinity of the handling strip.
<i>Sylvia nisoria</i>	Barred warbler	Local loss of shrub habitats with the incidence of bigger insects over 20 mm during the pipeline construction and subsequent management of the handling strip (mowing) following the completion of construction works.

### SKCHVU035 Vihorlatské vrchy

The impacts on the main criteria species of the PBA are identified in the following table.

**Table 4 Impacts on main criteria species of SKCHVU035 Vihorlatské vrchy.**

Scientific name of the species	English name of the species	Impacts of the activity on the species
<i>Circaetus gallicus</i>	Short-toed eagle	Cutting down of trees along the pipeline route and direct disturbance as a result of movement and work by heavy machinery during the pipeline construction.
<i>Dendrocopos medius</i>	Middle spotted woodpecker	Cutting down of old trees in forests with natural nesting cavities along the pipeline route - reduction of nesting and temporarily of foraging opportunities.
<i>Otus scops</i>	European scops owl	Cutting down of trees with the occurrence of natural cavities in the cultural landscape along the pipeline route - reduction of nesting opportunities.
<i>Strix uralensis</i>	Ural owl	Reduction of nesting opportunities due to the removal of stumps suitable for nesting, particularly in the vegetation of older age classes along the pipeline route.
<i>Jynx torquilla</i>	Eurasian wryneck	Temporary disappearance of suitable foraging habitats. After the completion of construction, their successful re-appearance will largely depend on the method and periodicity of maintenance (mowing) in the handling strip of the pipeline.

### SKUEV0387 Beskyd

The implementation of the proposed activity will lead to a partial damage to the habitats Ls5.1 Beech and fir-beech flowery forests, Ls5.2 Acidophilous beech forests, Ls4 Lime-maple scree forests, Ls 1.3 Ash-alder foothill alluvial forests, however no lasting impact on their positive condition in the concerned area is expected.

### SKUEV0763 Horný tok Výravý

The **indirect effects of V1, V1A, V2, V2, V3A alternatives** on the concerned area are expected:

- construction activity – increased noise and dust,
- ruderalisation of habitats, spreading of expansive and invasive plant species.

No permanent damage to the habitats is expected by the implementation of the proposed activity, neither any lasting impact on their favourable condition in the concerned area.

In the case of **V3 alternative**, in addition to the above also the following **direct impacts** on the concerned territory are expected:

- direct seizure of the habitat Ls1.3 Ash-alder foothill alluvial forests,
- temporary pollution of the water course.

The implementation of proposed activities will result in the damage to the above habitat, partial regulation of the riverbed, which foresees a lasting impact on its positive condition in the concerned area.

#### **SKUEV0049 Alúvium Rieky**

No direct or indirect impacts on the concerned territory are expected with **V1, V1A, V3, V3A** alternatives.

In the case of **V2, V2A alternatives**, in addition to the above also the following **direct impacts** on the concerned area are expected:

- direct seizure of the habitats Ls1.3 Ash-alder foothill alluvial forests, Lk5 High-herbal communities on moist meadows,

The implementation of the proposed activities will result in the damage to the above habitat, partial regulation of the riverbed, which foresees a lasting impact on its positive condition in the concerned area.

#### **SKUEV0386 Hostovické lúky**

No direct or indirect impacts on the concerned area are expected with **V1, V1A, V3, V3A** alternatives.

In the case of **V2, V2A alternatives**, the following **indirect impacts** on the concerned area are expected:

- construction activity – increased noise and dust,
- ruderalisation of habitats, spreading of expansive and invasive plant species.

No permanent damage to the habitats is expected by the implementation of the proposed activity, neither any lasting impact on their favourable condition in the concerned area.

#### **SKUEV0209 Morské oko**

No direct or indirect impacts on the concerned area are expected with **V1, V1A, V3, V3A** alternatives.

In the case of **V2, V2A alternatives**, the following **indirect impacts** on the concerned area are expected:

- construction activity – increased noise and dust,
- ruderalisation of habitats, spreading of expansive and invasive plant species.

No permanent damage to the habitats is expected by the implementation of the proposed activity, neither any lasting impact on their favourable condition in the concerned area.

#### **SKUEV0205 Hubková**

No direct or indirect impacts on the concerned area are expected with **V2, V2A** alternatives.

In the case of **V1, V1A, V3, V3A alternatives**, the following **indirect impacts** on the concerned area are expected:

- construction activity – increased noise and dust,
- ruderalisation of habitats, spreading of expansive and invasive plant species.

No permanent damage to the habitats is expected by the implementation of the proposed activity, neither any lasting impact on their favourable condition in the concerned area.

#### **SKUEV0005 Drieňová**

No direct or indirect impacts on the concerned area are expected with **V1, V2, V2A, V3, V3A** alternatives.

In the case of **V1A alternative**, the following **indirect impacts** on the concerned area are expected:

- construction activity – increased noise and dust,
- ruderalisation of habitats, spreading of expansive and invasive plant species.

No permanent damage to the habitats is expected by the implementation of the proposed activity, neither any lasting impact on their favourable condition in the concerned area.

#### **SKUEV0206 Humenská**

No direct or indirect impacts on the concerned area are expected with **V2, V2A** alternatives.

In the case of **V1A, V3A alternatives**, the following **indirect impacts** on the concerned area are expected:

- construction activity – increased noise and dust,
- ruderalisation of habitats, spreading of expansive and invasive plant species.

No permanent damage to the habitats is expected by the implementation of the proposed activity, neither any lasting impact on their favourable condition in the concerned area.

In the case of **V1, V3 alternatives**, in addition to the above also the following **direct impacts** on the concerned area are expected:

- direct seizure of the habitats Ls5.1 Beech and fir-beech flowery forests, Ls5.4 Limestone beech forests,

The implementation of the proposed activity will lead to a partial damage to the above habitats, however no lasting impact on their positive condition in the concerned area is expected.

#### **SKUEV0050 Humenský Sokol**

No direct or indirect impacts on the concerned area are expected with **V1, V2, V2A** alternatives.

In the case of **V1A, V3, V3A alternatives**, in addition to the above also the following **direct impacts** on the concerned area are expected:

- direct seizure of the habitats Pi5 Wild vegetation of Alysso-Sedion albi coalition on shallow carbonate and base substrates, Tr1 Xeric grassy-herbal and scrub vegetation on calcareous substrates, Lk1 Lowland and foothill hay meadows, Sk1 Carbonate rock walls with slit vegetation, Ls5.1 Beech and fir-beech flowery forests, Ls5.4 Limestone beech forests, Ls3.1 Thermophilous sub-Mediterranean oak forests,

The implementation of the proposed activity will lead to a partial damage to the above habitats, however no lasting impact on their positive condition in the concerned area is expected, the most valuable habitats within the NNR will remain preserved.

#### **SKUEV0250 Krivoštianka**



No direct or indirect impacts on the concerned area are expected with **V2, V2A** alternatives.

In the case of **V1, V1A, V3, V3A alternatives**, in addition to the above the following **direct impacts** on the concerned area are also expected:

- direct seizure of the habitats Ls5.1 Beech and fir-beech flowery forests, Ls5.4 Limestone beech forests, Ls3.1 Thermophilous sub-Mediterranean oak forests through ecotonal zone,

The implementation of the proposed activity will lead to a partial damage to the above habitats, however no lasting impact on their positive condition in the concerned area is expected, the most valuable habitats within the NNR will remain preserved.

#### **SKUEV0235 Stretavka**

No direct or indirect impacts on the concerned area are expected with **V1A, V2, V2A, V3, V3A** alternatives.

In the case of **V1 alternative**, the following **indirect impacts** on the concerned area are expected:

- construction activity – increased noise and dust,
- ruderalisation of habitats, spreading of expansive and invasive plant species.

No permanent damage to the habitats is expected by the implementation of the proposed activity, neither any lasting impact on their favourable condition in the concerned area.

The impacts on protected NATURA 2000 areas during the operation of the pipeline and technical facilities may be limited to the maintenance of the strip in 10 m width along the pipeline route, consisting of removing the volunteer trees and shrubs inside this strip. The periodicity of such work is in 10-year intervals. The impacts during operation are identical with respect to fauna, flora and habitats, which are described in detail in Chapter C.III.7. We do not expect any impacts on the integrity or coherence of the NATURA 2000 sites during the period of operation. From among the most important ones we may mention, for example:

- removal of herbal, shrub and also tree layer during the maintenance of the handling strip,
- impact of noise and dust while maintaining the handling strip,
- reduction of foraging and reproductive habitats of animals,
- ruderalisation of habitats, spreading of expansive and invasive plant species,
- local change in habitat conditions,
- temporary partial interruption of migrations, during the maintenance of the handling strip,
- changes in the soil edaphone structure in forest communities.

To minimise the impacts of this work, it will be necessary to perform the cutting down of wood species in the PBA only to the extent necessary, and this during non-vegetation and non-nesting season (August - December), the cutting down of wood species outside the PBA (e.g. bank vegetation, trees growing outside the forests) must take place outside the growing period of plants, which period also covers the nesting period of birds and raising of young by other animal species, i.e. in the period between August and February.

#### ***Assessment of the impacts of the planned activity on the integrity of NATURA 2000 sites in the concerned area***

Under the term “integrity of the territory” we understand the integrity of the ecological structure and functions of the territory over the entire concerned area or the complex of habitats or populations of selected species that form the subject of interest (protection). The condition for this functionality is the optimal spatial arrangement and interconnection of individual elements. The area has a high degree of integrity if a high potential is implemented in it for achieving the objectives of protection, provided that the ability of spontaneous recovery and spontaneous renewal is maintained and provided that a minimum amount of external interferences is required. The land protection objectives are used as a basis in the assessment of the impact on integrity. Assessed are both the continuity (*coherence*) of the total network of NATURA 2000 sites and also the wholeness (*integrity*) of the individual affected areas of the NATURA 2000 network.

During the construction, there will be a reduction in foraging and reproductive habitats of animals, local changes to habitat conditions, construction activity and disturbance of animals, the ruderalisation of habitats is expected – those are all effects tied to the relatively short construction period lasting 6-8 weeks per construction section, without any permanent presence of the visual impact of the construction in the landscape, permanent human presence following the completion of construction, and with the compliance with the proposed measures no substantial effect on the integrity of the sites of the NATURA 2000 network is expected.

#### ***Assessment of impacts on the coherence of NATURA 2000 network***

The coherence (continuity) is the environmental interconnectivity of the territories allowing the preservation of the types of natural habitats, species and habitats. This involves preservation of landscape structures allowing animal migration and spreading of plants and habitats among the NATURA 2000 sites. Assessed are the elements, which by the nature of their linear and continuous structure (e.g. TSES) or by their function, so-called “stepping stones”, are essential for migration, dispersal and genetic exchange of wild species.

The implementation of the proposed activity, and neither its operation, will not affect in any way the functions of the NATURA 2000 sites. The proposed activity will be led under the ground surface and will not present any obstacle to migration routes and neither disrupt their continuity.

For the above reasons, the coherence of the NATURA 2000 network and the individual populations of species and types of habitats communicating between the individual sites will not be disturbed. With respect to the environmental requirements, action radius, territories and migration ability of individual species, whose habitats are subject to the protection of NATURA 2000 sites, we may conclude that the construction and operation of the pipeline will preserve the spatial interconnections of the NATURA 2000 network and will have no negative impacts on the coherence of the NATURA 2000 sites.

#### ***Assessment of cumulative effects***

In the wider concerned area, the proposed route of D1 motorway (in the section Budimír – SK/Ukraine state border), which is crossed by all assessed alternatives. Given the fact that in the section, where the alternatives cross the above motorway, there is no protected area of national or European network of the protected NATURA 2000 sites and there is no likelihood of the occurrence of cumulative effects with a negative impact on the said sites.

In addition to the aforementioned impacts, the Assessment Report also evaluated other aspects falling under the protection of nature and landscape, such as impacts on the elements of the territorial system of ecological stability and the impacts on the migration

routes of animals. In general, we may conclude that the negative impacts of the construction period on the TSES elements are identical to the negative impacts described in the assessment of impacts on the flora and fauna and habitats. We may state that the effect on the regional bio-centers will be minimised by the proposed measures and the functionality of the regional bio-corridors will be restored shortly after the construction. Regarding the migration routes, their across-the-board and complete interruption is not expected because the cutting down of forests along the pipeline route and the pipeline construction itself will take place in the sufficiently time-separated periods - the migrating animals will be able to adapt to the changes in the conditions and modify their migrations.

### **Impacts on the population**

The construction period is associated with a temporary adverse impact on the welfare and quality of life in the affected settlements in relation to the construction activities. The impacts of the PL-SK pipeline and the associated structures on the population manifest by the increased noise as a result of passages by trucks and construction machinery (in particular, dustiness) and by the generation of emissions. The impact can be mitigated by appropriate organisation of the construction activities, at least by partial exclusion of the construction-related traffic from populated settlements and by compensation measures. The defining moment for the mitigation of impacts is the determination of conditions for the construction in the building permit.

The proposed pipeline route alternatives respect to the maximum extent possible the urban environment of individual affected municipalities. They avoid continuous built-up areas of settlements. The to-date examination of the affected area and the proposed routes of the pipeline in the assessed alternatives, including accompanying objects, does not lead to any requirement for any demolition of residential buildings.

### **Impacts on the rock environment**

All alternatives cross the territory, which has been built by flysch rocks. Within the area there occur landslides, slope deformations and also areas prone to landslides. The construction of the pipeline – especially the need to build incisions, crossing of steep slopes, building the work strip – all destabilise the area and with inappropriate interference with the area may cause the activation of landslides.

In the pre-design phase – in the engineering geological survey, it is necessary to define the active, potential and stabilised landslides and based on that to optimise the routing of the pipeline, while simultaneously adopting the technical measures.

### **Impacts on the surface water**

These impacts will manifest mainly at the crossing of water courses with the pipelines. These are analysed in detail in the AR, including the length of the crossing with individual water courses. Based on individual alternatives, those are total lengths of 190 to 282 meters.

The proposed method of crossing the watercourses should minimize the impact on the flow in the water course or its pollution by oil substances. Nevertheless, it is necessary to adopt measures in particular to secure any eventual states of emergency. The emphasis must be laid on water courses that are important for water management.

In the next stage of the design preparation, it will be necessary to respect the conditions of flood protection in accordance with the provisions of Act no. 7/2010 Coll. on protection against flooding. It will be necessary to design the various construction methods in a manner that the drainage conditions do not change by the crossing of water courses and that the

flood protection of the area is not affected. The cross sections of bridge structures over water courses will have to be designed for  $Q_{100}$  water flow.

### Impacts on groundwater

Neither the groundwater nor water resources will be significantly affected by the operation of the pipeline. The actual pipeline body does not act as an impermeable barrier to the flow of groundwater. The construction activities in most of the route (according to preliminary estimates) will be above the existing groundwater level, or possibly on the level of its variation.

During the construction, it will be necessary to ensure such measures as to avoid the contamination of soil or groundwater. Those will be mainly measures at the locations of construction facilities, storage areas for machinery and when handling the oil substances. Only the emergency leaks of hazardous substances pose a significant risk.

To handle the potential emergency leaks of hazardous substances during the construction, it will be necessary to draw up an emergency plan in accordance with Act no. 364/2004 Coll. on water and its implementing regulation no. 100/2005 Coll.

### Impacts on the soil

The priority impact on the soil comes with the seizure of agricultural land.

The permanent seizures of agricultural land are limited to the areas where the operational buildings of the pipeline will be built. They are expected to amount to approximately 10,880 m<sup>2</sup>. Their scope is identical for all assessed alternatives.

The temporary seizures represent the working strip of the maximum width at the locations with arable land of 40 m and on the grassy locations, other areas of 36 m width. The topsoil shall be removed in the working strip and stored at the edge of the working strip along the entire route length. Once the construction is completed, the topsoil will be once again spread over the surface of the working strip.

The temporary seizures of agricultural land by different soil quality groups is given in the following table, while the soils of highest quality (in group 1-4) are temporarily seized only to the minimum extent.

#### *Temporary seizures of agricultural land by quality groups (hectares)*

Soil group	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 1A	Alt. 2A	Alt. 3A
4	3.34	0.00	3.82	5.52	0.00	0.00
5	67.44	53.03	62.87	46.85	36.94	55.80
6	133.70	126.77	160.59	131.49	125.17	135.67
7	83.10	112.77	52.52	89.77	107.29	81.98
8	20.90	33.95	36.99	25.00	32.70	28.83
9	41.34	72.59	32.58	45.20	77.11	33.49
Total	349.82	399.11	349.38	343.84	379.21	335.77
of which highest quality soils within the cad. area of municipalities	148.38	174.09	142.52	117.67	167.05	130.04

Should the presence of any land drainage pipes be identified along the construction route, this system will be reconstructed after the implementation of the proposed activity, so that its functionality is not disrupted.

### Impacts on the urban complex and land use

The impact on the industrial production and services may be assessed on a secondary basis as a positive one because it diversifies the sources of natural gas for the Slovak Republic and reduces the risk of interruption of gas supply, in particular from Ukraine.

The direct negative impact comes with the contact of the pipeline with the industrial facilities, respectively with commercial activities - small wood production and processing facility in the cadastral areas of Jabloň and Udavské municipalities and also the contact with the north edge of the newly built Snina recycling centre. However, those are contacts with the alternatives which, according to the assessment in this report, will not be implemented.

The construction activity will influence both the structure of grown crops and the production intensity. The most significant direct impact is the reduction of agricultural production due to permanent seizure of agricultural land.

In addition to the seizure of agricultural land, there are contacts between the protection zone of the pipeline and the protection zone of agricultural yards. The mentioned contacts must be addressed in the later stages of project preparation with the owners of these sites (Agricultural Farm in Nacina Ves and Krásnovce).

During the pipeline operation, the said agricultural lands will be restored to their original condition and it will be possible to use them as originally intended.

During the construction there will be interferences with the forests. The forests in the concerned area belong to the following forest management units (FMU): Strážske, Humenné, Koškovce, Výrava, Medzilaborce, Snina, Sobrance.

The proposed activity will have certain negative impacts on the forest management, in particular:

- reduction of the forest production area and thus also lower increase of the forest mass,
- possible soil erosion,
- loss resulting from premature liquidation of vegetation, representing economic loss of the user as a result of lower production, lower financial amount for the wood (thinner assortments) and higher costs of wood production and wood collection during cutting,
- newly created vegetation wall in the vegetation, which could increase its vulnerability to wind and pollution.

A highly sensitive period is the period of cutting down the trees along the pipeline route, their concentration and haulage from the area. When concentrating the timber, it will be necessary to prevent damage to the soil cover even in the areas indirectly affected by the construction, so that there occurs no erosion.

Overview of the expected cutting down of forests:

Forest type	V1	V1A	V2	V2A	V3	V3A
commercial	251,275	293,250	<b>299,230</b>	281,290	288,075	258,980
protective	10,350	10,350	<b>20,700</b>	11,500	10,810	10,350
special purpose	18,860	5,750	18,860	17,250	18,860	<b>25,990</b>
<b>Total</b>	280,485	309,350	338,790	310,040	317,745	295,320

During the operation, it will be necessary to leave a cut strip along the pipeline route of 5 m width on each side of the pipeline axis. The permanent deforestation in these sections will be regularly maintained by the pipeline operator and will remain permanently without trees. At

regular intervals of about once in 2-5 years, the operator shall perform the removal of volunteer trees and shrubs.

By its nature, the proposed activity does not pose a risk to recreational or sports activities. From among the real alternatives, it is only with the alternative IIIA that the pipeline comes close to the southern edge Chlmecký rybník (pond), which is used for sport fishing.

#### **Impacts on traffic and technical infrastructure**

The Assessment Report specifies the crossings with roads and railway tracks. Also affected will be the water management infrastructure (water distribution pipes, sewerage), distribution of gas, electricity, product pipelines and other networks. The impacts relate to the construction phase, and this at the locations where the pipeline route crosses any transportation or utility networks. The crossing will be solved in accordance with the applicable STN standards and agreements with the operators of these networks, who will determine the crossing conditions and, at the same time, the conditions for protection of the networks they operate. These crossings will form part of the induced investments in the construction of the PL - SK gas interconnector.

#### **Impacts on the archaeological sites**

Based on the localisation of findings and registered localities, it is necessary to expect the occurrence of archaeological sites along the planned route. It is therefore necessary to perform the archaeological survey at all locations that are situated along the route and it is necessary to implement the rescue archaeological research activities at the individual sites at least three months prior the start of the excavation and construction work (outside December – February period).

## **7 MITIGATING MEASURES**

The mitigating measures described in Chapter C.IV of the Assessment Report will be performed to mitigate the impact of the construction on the environment and human health.

The most significant of these are the measures that need to be developed in the subsequent project preparation, measures in the field of protecting the biota, soil and surface and ground water.

After the final opinion is issued, which will be issued for the assessed construction by the Ministry of Environment SR, and at the initiative of eustream, a.s., the affected municipalities and authorities will have to incorporate the final route of the gas interconnector and the relations arising from it into the land planning documentation of the self-governing regions and individual municipalities.

## **8 ASSESSMENT OF THE COMPLIANCE OF THE ACTIVITY WITH THE VALID LAND PLANNING DOCUMENTATION**

The PL-SK gas interconnector project has been incorporated into the Land Planning Documentation (hereinafter the “LPD”) of the Košice Self-Governing Region. The new LPD of the Prešov Self-Governing Region (hereinafter the “PSGR”) is in the phase of preparation and the request was sent to the contracting authority to review the territorial dispositions of the routing of the planned interconnection of the gas transmission systems of the SR and Poland by the new high-pressure gas pipeline corridor, which passes through the PSGR in line with the maps found in the Study”. After the most suitable alternative is selected, the next stage

of the project documentation will be the “Documentation for area management”, which will be provided to both self-governing regions for incorporation of changes and amendments to the LPD of the self-governing regions.

The LPDs of self-governing regions are, as the land planning documentations of higher territorial units, binding for the land-use plans of towns and municipalities. However, certain affected villages in the Prešov and Košice regions do not have any land-use plans prepared, since the obligation to obtain a land-use plan does not apply to them.

The next steps in the preparation of the land planning documentation are governed by Act no. 50/1976 Coll. (Building Act).

The specific solutions and route proposals will emerge from the assessment process of environmental impacts, respectively will be adapted by the investor in the subsequent stages of the project preparation, based on the decisions on the route optimisation.

In further preparation of the project, it is necessary to coordinate it with the LPD of both self-governing regions, as well as with the LPD of the towns and municipalities.

## 9 COMPARISON OF ALTERNATIVES

In accordance with the scope of assessment of 8<sup>th</sup> December 2014, the Assessment Report has been prepared in three alternatives of the proposed activity, namely in Alternative 1, Alternative 2 and Alternative 3, which represent the proposed solutions from a territorial viewpoint, while the technical and operational conditions remain identical. During the preparation of the AR, based on the comments raised by the municipalities and other entities, the above alternatives of the pipeline routes were modified up to the extent that the new alternatives were proposed, idea of which is based on the original alternatives. All new alternatives were given the “A” suffix while preserving the original number, as to make it clear on which alternative they are based.

The difference between the new and previous alternatives is relatively small, they only differ in details but have common corridors. 6 equivalent alternatives enter the comparison of alternatives:

Alternative 1, Alternative 1A, Alternative 2, Alternative 2A, Alternative 3, Alternative 3A

The pipeline routing alternatives were compared using two methods – multi-criteria assessment and qualitative comparison based on the strengths and weaknesses.

### Multi-criteria assessment

The alternatives were compared in terms of the criteria that were compiled into three criteria-groups:

1. technical and economic criteria
2. impacts on population and socio-economic environment
3. impacts on the natural environment

Set of criteria	Criterion ser. no.	Criterion
Technical and economic	1	Investment costs

	2	Route length
	3	Technical difficulty - passage through water courses
	4	Technical difficulty - passage through unstable territory
<b>Population and socio-economic environment</b>	5	Impact on PDA and MA
	6	Impact on territorial development
	7	Impact on cultural monuments and archaeol. sites
<b>Natural environment</b>	8	Impacts on groundwater
	9	Temporary seizure of PPF
	10	Permanent deforestation
	11	Impacts on TSES elements
	12	Impacts on NATURA 2000 sites
	13	Impacts on the national system of protected areas

The weights were assigned to the individual criteria groups, as well as to the individual criteria, and the rate of impact of each indicator was expressed on a scale from 0 (negligible impact) to 10 (impact of extreme importance).

A simple calculation demonstrated that we may consider the 1A alternative as the most suitable one, closely followed by the alternative 3A. The other alternatives have proved to be significantly less suitable for implementation.

Similar results were also obtained with the **qualitative comparison**, where the main negatives and positives of the alternatives were taken into account.

The submitted alternatives were assessed and compared on the basis of the comprehensive analysis of impacts, while the decisive weight was assigned, on the basis of expert reference documents, to the impacts on the natural environment with the particular regard to the impact on the sites of the NATURA2000 network and the national network of protected areas. Up to the municipality of Svetlice, the assessed alternatives are led in a single corridor. Starting from that locality, they divide into two corridors - west (Alternative 1, 1A, 3 a 3A) and east (Alternative 2, 2A). Given the pipeline length, terrain configuration and natural properties, it is not possible to avoid all the interest of nature conservation, respectively to avoid the affected villages and towns. Therefore, the optimal route does not represent any particular alternative but a combination of alternatives.

Based on the above comparison and the evaluation of impacts, we recommend to proceed further with the following route of the gas interconnector:

**Connection point C, continues by alternative 2A, under the municipality of Výrava connection to alternative 1A, near the municipality of Chlmec connection to alternative 1 behind Chlmec, and continuation in alternative 1A.**

**Optionally, in the area of the municipality of Chlmec it is possible to route the pipeline near Chlmec in the alternative 1A and to interfere with the southern edge of the SKUEV0050 Humenský sokol area under the conditions provided in Chapter C.V.2.**

Note\*

From the viewpoint of impact on the NATURA 2000 sites and the national network of protected areas, the Alternative 1 behind Chlmec is suitable, but in terms of the development potential of the municipality and the negative standpoints of the Chlmec municipality, there is also indicated in the proposal of the optimal alternative the possible optional route near the municipality of Chlmec in 1A alternative.



At the same time, it should be noted that it will be necessary to optimise the proposed alternative as early as in the project documentation from the viewpoint of costs and technical conditions so that the investment is also feasible in economic terms.

Within the cross-border assessment, three different connection points of the Polish and Slovak parts of the pipeline were assessed - labelled as A (northernmost), B (middle) and C (southernmost). All three points are situated in the Lupkovský Pass. The comparison of these alternatives showed that in terms of impacts on the protection of nature it is the C point that is the most suitable.

## 10 CROSS-BORDER ASSESSMENT OF IMPACTS

Represented by the Directorate General of the Environmental Protection Office, the Polish party responded to the letter dated 28<sup>th</sup> November 2014 relating to the Notice in accordance with the Espoo Convention, sent by the Ministry of Environment SR. By its response it showed interest in participating in the cross-border assessment of the environmental impacts of the proposed activity "Poland - Slovakia Gas Interconnector".

The main requirements of the Polish party specified in the letter, which were further developed at the two meetings attended by the potential investors, representatives of the state nature protection and professionals in charge of preparing the assessment of impacts for both the Polish and Slovak part, were to explore the possibilities of an alternative solution for the connection points of the pipeline route from both sides of the border. Also raised was the request to assess the impacts on the interests of nature conservation in the frontier area of Poland.

### Alternatives of pipeline connection points

At the joint negotiations both parties agreed on three border points for interconnecting the pipeline. The original connection point, designated as B, which was also considered in the plan, emerged from the initial feasibility study prepared by the Polish party.

The Polish investor, GAZ-SYSTEM S.A., reacted to the request for alternative solution of the connection by preparing the proposal designated as A, which is located north of the point B, but still within the area of Lupkovský Pass. The point was proposed in relation to the existing rail corridor and, thus, advantageous terrain conditions in a relatively used and altered area.

The Slovak investor EUSTREAM, a.s. reacted to the given request by approaching the representatives of the SNC and, based on the inspection in the field, they determined as the optimal location for the border crossing point the locality designated as point C. The routing of the pipeline through the border region of Slovakia towards this point of connection should come with relatively less serious impacts compared with other alternatives.

The area of Lupkovský Pass was chosen because on the Polish side there is no protected territory in direct contact with it. On the Slovak side, the entire area is protected by the European and Slovak legislation.

In order to objectively evaluate the advantages and disadvantages of individual alternatives of the connection point, the field surveys of the biota took place.

The field survey took place on the Polish side in the period of January - June 2015. The standard methodologies were used, as are used in similar surveys.

The field survey took place on the Slovak territory in the connection points A, B, C (Pčolová, Hlôška, 2015) in the months of May - June 2015, using the methodologies as were used by the colleagues on the Polish side, so that the results were comparable.

The survey was focused on comprehensive botanical analysis of the border zone of 500 m width with the overlap to the territory of Poland. The phytosociological screening took place, including the analysis of communities and habitats, inventory of the composition of species of the vascular plants and bryophytes and identification of habitat types in the field (under the Habitats Directive).

The zoological survey focused on the amphibians and reptiles, bird communities and mammals in 500 m zone width. The aim of the survey was to check the presence and distribution of important European species (including major European species listed in the Birds Directive, in the Red List of endangered and protected animals). The methodology involving the quantitative sampling of the birds - band method - acoustic and visual registration of birds (songbirds, raptors and owls) was used, in line with the international methods. With small terrestrial mammals (rodents and insectivore Soricidae), the quadratic method of capture was used (marking and re-capture of marked individuals - CMR). Other mammals (ungulates, carnivores, Lagomorpha) - indirect observation - analysis of tracks and signs of presence (faeces, hair, feathers, generational dens, food consumption remnants). The direct observation in the field also used the installation of photo traps for automatic registration of the space-time activity and migrations of large mammal species, and this in accordance with the international teriological methods. The amphibians and reptiles: direct observation (i.e. life stages of amphibians in reproduction tanks) - periodic puddles - catching and accurate determination of reptiles. The assessment of impacts on the NATURA 2000 territory took place under Articles 6.3 and 6.4 of the Council Directive no. 92/43/EEC of 21 May 1992 on the conservation of natural habitats, wild fauna and flora. The summary of the assessment of connection points with respect to individual assessment criteria is in the following table.

**Summary of the assessment of connection points in the territory of Slovakia.**

Evaluation criteria	Connection point A Northern alternative	Connection point B Central alternative	Connection point C Southern alternative
Length of passage through forests	Alternative 3A – 5300 m	Alternative 1, 2, 3 – 4860 m, Alternative 2A – 4980 m	Alternative 1A – 4570 m
Presence of ecological and migration corridors of animals	yes	yes	yes
Presence of natural habitats	yes	yes	yes
Number of protected species	Amphibians - 3, reptiles - 2, birds - 37, mammals - 9	Amphibians - 2, reptiles - 2, birds - 36, mammals - 11	Amphibians - 1, reptiles - 1, birds - 13, mammals - 5
Potential impacts of the pipeline route on natural values	damage to valuable stands of old age, damage to habitats, impact of noise and dust during the construction, removal of herbal, shrub and also tree layer, reduction of foraging and reproductive habitats of animals, pedocompaction and disruption of soil structure and soil stratification,	damage to habitats, impact of noise and dust during the construction, removal of herbal, shrub and also tree layer, reduction of foraging and reproductive habitats of animals, pedocompaction and disruption of soil structure and soil stratification, local change in habitat conditions	damage to habitats, impact of noise and dust during the construction, removal of herbal, shrub and also tree layer, reduction of foraging and reproductive habitats of animals, pedocompaction and disruption of soil structure and soil stratification, local change in habitat conditions

	local change in habitat conditions		
Distance from Natura 2000 sites	passes through the territory SKCHVU011 Laborecká vrchovina (V3A – 31.77 km) SKUEV0387 Beskyd (V3A – 4100 m)	passes through the territory SKCHVU011 Laborecká vrchovina (V1 – 31.40 km, V2 – 34.71 km, V3 – 31.40 km, V2A – 33.91 km) SKUEV0387 Beskyd (V1, V2, V3 – 3980 m, V2A – 4100 m)	passes through the territory SKCHVU011 Laborecká vrchovina (V1A – 30.66 km) SKUEV0387 Beskyd (V1A – 4170 m)
Suitability of the connection point	totally unsuitable	unsuitable	suitable under certain proposed measures

**Further characterisation of habitats for different points of connection.**

Evaluation criteria	Connection point A Northern alternative	Connection point B Central alternative	Connection point C Southern alternative
Types of habitats	Ls5.1 Beech and fir-beech flowery forests (habitat of European importance) – predominant habitat Ls5.2 Acidophilous beech forests (habitat of European importance) – refugial Forests are registered as a gene pool base	Ls5.1 Beech and fir-beech flowery forests (habitat of European importance) – predominant habitat Ls5.2 Acidophilous beech forests (habitat of European importance) – refugial Forests are registered as a gene pool base	Ls5.1 Beech and fir-beech flowery forests (habitat of European importance) Forests are registered as a gene pool base
Percentage of habitat damage by anthropic activity	15% of the habitat – Alternative 3A is damaged by tree cutting (clearings)	11% of the habitat – Alternative 2 is damaged by tree cutting (clearings) 17% of the habitat – Alternative 2A is damaged by tree cutting (clearings)	41% of the habitat – Alternative 1, 2, 2A, 3, 3A is damaged by tree cutting (clearings) 37% of the habitat – Alternative 1A is damaged by tree cutting (clearings)

Evaluation criteria	Connection point A Northern alternative	Connection point B Central alternative	Connection point C Southern alternative
Occurrence of main and typical habitat species	yes	yes	yes
Presence of old trees	yes, in a large proportion	yes	yes
Presence of dead wood	yes	yes	yes
Rejuvenation ability	excellent	excellent	excellent
Reproductive and foraging habitats for animals	yes	yes	yes, partially disturbed by tree cuts

**Note:**

The species protected in Poland also occur in Slovakia, but in our territory they are not classified in the protected species category.

The length of passage through the forests was taken into account through the NATURA 2000 sites.

In terms of individual alternatives on the Slovak and Polish side, it is not possible to mutually compare based on the species spectra, because on the Slovak side there are forest habitats and a more homogeneous environment (fir-beech forest), which is why the species tied to wetlands are absent (*Dactylorhiza majalis*) and open areas (butterflies). However, this does not point to any a poorer quality of habitats. In assessing, we took into account the species diversity of the habitat and also the biodiversity of the terrestrial vertebrates, not only of the important European species.

Based on the evaluation of the suitability of connection points in terms of the impacts on fauna, flora, habitats and NATURA 2000 sites, the connection point **“A” is completely unsuitable**. The alternative interferes with the compact forest habitat protected as a gene pool of silver fir (*Abies alba*), the territory is characterised by high proportion of native trees of older age classes with the occurrence of natural nesting cavities (cavity nesting birds, arboricola rodent species, e.g. dormouse), the highest species diversity of terrestrial vertebrates (amphibians, reptiles, birds and mammals) was found. The migration routes of cloven-hoofed animals and large predators pass through the territory. The continuous forest habitats are absent in Poland, those are open habitats that dominate. A railway track with a tunnel (Lupkovský tunnel) is present.

The **point “B”** was assessed as **unsuitable**. The forest biocenosis is more fragmented in the area by forest management activities (cutting down of trees), the lower proportion of old-age trees is typical (less breeding opportunities for cavity nesting birds and hiding opportunities for arboricola rodent species. Compared to the point “A”, lower species diversity of terrestrial vertebrates. The existence of migratory routes of cloven-hoofed animals and large predators with less density. In Poland, the composition of tree species is affected anthropogenically (dominated by pine and birch with admixture of beech and fir). At the edge of the forest complex, there are typical birch groves, larch stands. The protected natural habitats of European importance are absent.

Point **“C”** was assessed as **suitable, under the condition that the proposed measures are implemented**. From among the compared connection points, the forest biocenosis exhibits the highest degree of fragmentation (high proportion of glades), lowest biodiversity of terrestrial vertebrates and the lowest frequency of daily migrations of large predators. The forest habitats on the territory of Poland are with anthropogenically affected species and spatial composition - spruce, pine, pine-birch, spruce forests. At the ends of the valleys, there are fragments of beech and fir-beech flowery forests (habitat of European importance).

For the above reasons, the most suitable point of connection is the “C” point.

For the sake of completeness, we also provide the corresponding evaluation of connection points by the Polish side. They evaluated **point A** as the **most acceptable alternative**, point B as conditionally suitable and point C as unsuitable.

Simplified valorisation along the alternatives and assessment of the impact on natural environment	Northern alternative	Central alternative (original)	Southern alternative
Presence of uniform forests	Missing	Yes, max. about 630 m	Yes, max. about 1930 m
Ecological and migration corridor of animals	No	Yes	Yes
Natural habitats	No	No	Yes
Protected species	25 bird species, 1 reptile species	3 reptile species, 2 amphibian species, 35 bird species, 3 mammal species	3 plant species, 5 reptile species, 1 amphibian species, 30 bird species, 3 mammal species
Potential impact of the pipeline route on natural values	Negligible, greater impact missing	Temporary seizure of pasture and hatchery habitats, mostly associated with the forest environment, scaring and frightening	Temporary seizure of pasture and hatchery habitats, mostly associated with the forest environment, scaring and frightening; possible destruction of natural habitats
Distance from Natura 2000	About 75 m	About 440 m	About 1120 m

sites			
Recommended alternative	Yes (while paying attention to minimisation, such as narrowing the construction strip and installing fencing around trenches)	Yes (while paying attention to minimisation, such as narrowing the construction strip and installing fencing around trenches, cutting down the trees in October – January period)	No

## Assessment of impacts on NATURA 2000 sites in the frontier region of Poland

### Impacts on the protected areas in Poland

Three NATURA 2000 sites situated in Poland were identified to be in contact with the concerned area. The proposed activity does not interfere directly with these areas, closest to the NATURA 2000 sites are the assessed connection points A, B, C, located on the PL - SK border. There are no other protected areas in the frontier region on the Polish side.

#### Brief characteristics of the NATURA 2000 sites in Poland

##### **PLH180014 Ostoja Jásliska**

The subject of protection are the preserved forest communities, with the predominance of oak and sycamore and with the occurrence of large predators, wolf, bear, lynx. The important forest fauna refuge with large predators: bear, wolf and lynx. For among amphibians there are numerous populations of yellow-bellied toad (*Bombina variegata*) species. The unique occurrence of the rare species of invertebrates, such as *Cucujus cinnaberinus*, *Rhysodes sulcatus*. Several species of bats are tied to the caves. The area is characterised by rich fauna of birds, especially birds of prey. The important migratory route of birds leads through the territory. From among flora species, there is a rare occurrence of spikerush (*Eleocharis carniolica*).

It is the connection point "A" which is the closest, at approx. 900 mm distance south of the protected area, point "B" is about 1130 m south west of the protected area and the point "C" approx. 1500 m south west of the protected area.

##### **PLB180002 Beskid Niski**

This is a transition zone between the Western and Eastern Carpathians. The area is made up of forest communities of beech-fir forests, oak-hornbeam forests at lower altitudes and alluvial forests with the predominance of alder, characterised by the occurrence of yew (*Taxus baccata*) and larch (*Larix decidua*). From the botanical point of view, the occurrence of habitats with numerous populations of orchid plants is important. There occur here large predators – wolf, bear, lynx, from among the birds the lesser spotted eagle, golden eagle, common buzzard, eagle owl, grouse, Ural owl. Numerous in the area are also amphibians and reptiles, from among invertebrates the rare species of butterflies and Clouded apollo.

The closest one is the connection point "A" at the distance of approx. 140 m south of the protected area, point "B" is about 480 m south of the protected area and point "C" approx. 980 m south of the protected area.

##### **PLC180001 Bieszczady**

The area is typical of the occurrence of native forest communities with prevailing beech, with the occurrence of large predators – wolf, bear, lynx, European bison. Also typical is the occurrence of the thermophilic Aesculapian snake.

It is the connection point "C" which is the closest, at approx. 1360 m distance north of the protected area, point "B" is about 1860 m north of the protected area and the point "A" approx. 2210 m north of the protected area. The actual routes are located at a distance of about 825 m in the valley of the Výrava River.

Based on the detailed assessment with the emphasis on the evaluation of the frontier zone while taking into account the requirements defined in the letter of the Polish party, we do not expect any cross-border impact on the NATURA 2000 sites, as in Poland those are located at a sufficient distance from the planned activity.

However, the impact on forest vegetation outside of NATURA 2000 sites is expected, which impacts are greatly analogous to the impacts on the Slovak side, and this both during the construction and during the operation:

Impacts during the construction:

- ✓ removal of herbal, shrub and also tree layer,
- ✓ impact of noise and dust,
- ✓ reduction of foraging and reproductive habitats of animals,
- ✓ ruderalisation of habitats, spreading of expansive and invasive plant species,
- ✓ local change in habitat conditions,
- ✓ temporary partial disruption of migrations.
- ✓ changes in the soil edaphone structure in forest communities.

31<sup>st</sup> July 2015

For the elaborator: RNDr. Anton Darnady, Executive, ENVICONSULT spol. s r.o.

For the proposer: