

NON-TECHNICAL SUMMARY

PROPOSED ACTIVITY: POWER TRANSMISSION LINE RATED 2x400 kV BYSTRIČANY - HORNÁ ŽDAŇA

PROPONENT: SEPS A.S., (SLOVAK ELECTRICITY TRANSMISSION SYSTEM,
PLC.)

JUNE 2013

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1. Introduction

This non-technical summary provides a brief overview of the performed **environmental impact assessment and its single steps**, including involvement of stakeholders and affected parties, identification of basic impacts of the proposed activity on the environment and population, as well as information on results of this assessment including proposed measures to ensure environmentally appropriate project implementation.

The particular steps of the whole process are published regularly on the web pages of the proponent www.sepsas.sk (<http://www.sepsas.sk/seps/VedenieBystricanyZdana.asp?kod=533>), on www.enviroportal.sk (<http://www.enviroportal.sk/sk/eia/detail/vedenie-2x400-kv-lokalita-bystricany-horna-zdana>) as well as on the web pages of affected municipalities, on public notice boards or in other ways.

2. Project description

2.1 Purpose of the project

The objective of the project is construction of 2x400 kV power line between locality Bystričany and 400 kV distribution point (hereinafter as „DP“) in Horná Žďaňa, of 31 km in total length. New 2x400 kV line will be constructed in the route occupying mainly corridors of dismantled lines or corridors along the existing along 110 kV and 400 kV lines. By the realization of the project **new 400 kV** connection Bystričany – Horná Žďaňa will be created, as the part of the program of modernization and improvement of national transmission system and gradual exchange of outdated 220 kV transmission system in the SR for 400 kV one.

2.2 Brief technical description of the project

The proposed project represents the second stage of the planned connection of junction point Bystričany to the 400 kV transmission system (H. Žďaňa – Bystričany - Křižovany).

The proposed activity represents the construction of 400 kV power line without additional technical infrastructure.

The new 2x400 kV power line H. Žďaňa – Bystričany, of approximately 31 km in total length, will be constructed on galvanized towers of SUDOK type, with three anchor and two carrying insulator sets conforming to electric strength tests, radio interference and mechanical parameters complying with applicable standards. Insulator sets with surface corresponding to the air pollution level according to the STN 330405 - standard will be used.

Technical design of the construction must conform to the applicable standards and requirements for power line operation.

The new 2x400 kV line will be situated (depending on the selected alternative/bypasses of municipalities - more details in next text) in the corridor of dismantled 220 kV line V240, in corridor alongside existing 2x110 kV line V7747/7747, in front of the point of mouth into DP H. Žďaňa, in parallel with the 400 kV line V492 and partially in new corridors.

By the construction of new 2x400 kV line the protective zone will be created in the following extent:

- in the sections of newly proposed variants: **new protective zone in the total width of 69 m.**
- in line – **in concurrence with the existing 2x110 kV line the total width of protective zone will be extended by circa 57 m from one side.**
- in line – **in concurrence with the existing 400 kV line the PZ will be extended by 45 m from one side.**

Tab No. 1: length of individual sections and alternatives

Veľké Uherce – Banská		Banská - Tomášov Štál –		Tomášov Štál – Hrabíčov		Hrabíčov – Kristiánovci		Kristiánovci – Horná Ždaňa	
HV1	10,6 km	VP1	6,5 km	1z	4,8 km	H1	3,4 km	1v	5,0 km
HV2	11,4 km	VP2	6,2 km			H2	3,5 km		
HV3	11,4 km	VP3	5,9 km						

The final length of line can vary between **29,7 to 31,2 km** depending on the final combination of selected alternatives.

Total number of towers: 113-127

Number of break-points (R): 17 – 27 SUDOK type

Number of load-bearing towers (N): 86-110 SUDOK type

The exact number of towers will depend on the selected combination of proposed alternatives and on the terrain configuration limiting the length of tower spans.

2.3 Site location

Routing of the new line was within the Preliminary Environmental Study originally proposed as one single variant. Based on the submitted documentation, taking into account the standpoints of affected parties and consultations with the proponent, Ministry of Environment of the Slovak Republic determined on 2nd July 2012 the Scope of Assessment. This scoping introduced the necessity to find and evaluate further suitable modifications when elaborating the Environmental Impact Statement, in case such need arises from consultations with affected parties.

The already performed assessment process thus resulted into the need for finding environmentally and technically most suitable routing of the respective 2x400 kV line, particularly with regard to the specificity of the affected area characterized by diffused settlements called „stale“ as well as with regard to the importance of forest land protection and need for routing outside built-up areas of affected municipalities.

These modifications of the original alternative introduced in the Preliminary Environmental Study were incorporated into the Environmental Impact Statement as new alternatives for routing of the proposed 2x400 kV line – new bypasses of municipalities Horná Ves (HV2, HV3), Veľké Pole (VP2, VP3) and Hrabíčov (HR2), outlined with the aim to optimize the routing outside built-up areas.

The new alternatives represent following modification of the track of line:

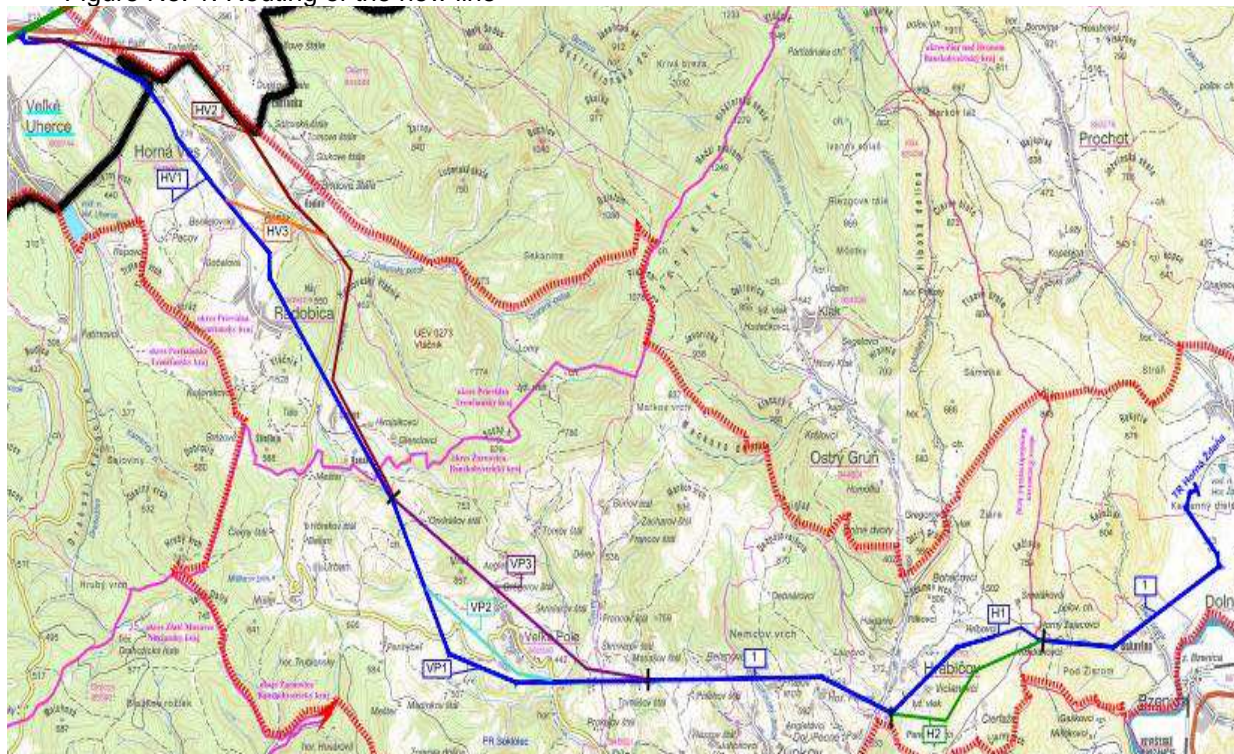
Horná Ves: alternative HV2 and HV3: proposed upon comments of municipality Radobica regarding scenery disturbance in the foothill area, where the municipality is located. These alternatives completely avoid Radobica, both running on the opposite site of Radobica valley along with the existing 2x110 kV line in free corridor. Bypass of Horná Ves will be feasible from north or south, both being environmentally equal options.

Veľké Pole: alternative VP2: proposed upon comments of municipality Veľké Pole and standpoints of state authorities. It avoids the conflict area of mining space; otherwise it is equal to alternative VP1

Veľké Pole, alternative VP3: proposed upon comments of municipality Veľké Pole and standpoints of state authorities taking into account requirements on routing avoiding built-up areas and mining space. This alternative makes use of the existing corridor of 2x110 kV line, the built-up area will be avoided from north. At the same time the mining space and diffused built-up areas are avoided. It represents less significant intervention into the Natura 2000 site – Site of Community Importance (ÚEV) Stráž.

Hrabičov, alternative HR2: proposed upon comments of municipality Hrabičov due to the conflict with the development plans of the municipality. The alternative routing through forest completely avoids built-up area and at the same time does not disturb the scenery and landscape value of the diffused settlement in locality Čierťaže.

Figure No. 1: Routing of the new line



The proposed linear construction of overhead electric power line will be situated in the track of corridors of dismantled lines rated 220 kV and 2x110 kV, in combination with tracks of existing lines 2x110 kV and 400 kV as well as new ones – alternative bypasses of built-up areas of municipalities Horná Ves, Radobica, Veľké Pole and Hrabičov. These tracks are proposed alternatively, while the final routing can be a combination of several alternatives. The line runs in the direction northwest – southeast and follows in west – east direction through cadastral areas of municipalities: Veľké Uherce, Pažiť, Oslany, Horná Ves, Radobica, Veľké Pole, Píla, Župkov, Hrabičov, Bzenica, Dolná Žďaňa and Horná Žďaňa.

Site location and nature protection

The new 2x400 kV line between Bystričany and DP Horná Žďaňa is situated in various types of landscape structures. The outline begins and terminates in land intensively used for agricultural purposes of mildly undulated terrain (Hornonitrianska and Žiarska kotlina). The central and major part of the track runs in uplands at the southwest edge of the Vtáčnik mountain and in short sections intervenes into the north-east edge of the Tribeč mountain. The landscape structure is variably represented by agricultural land on mild slopes (arable land, meadows and grazing land) and forest land (mainly production forests)

As regards the nature protection, the line in two-thirds passes through territory under first (general) degree of protection. About 10 km long section of the line intervenes into the **Protected Landscape Area (CHKO) Ponitrie** under second degree of protection. The route intervenes also into the protected sites of **Natura 2000 network – Sites of Community Importance ÚEV Vtáčnik and ÚEV Stráž** (more detail in chapter 4. Environmental Assessment)

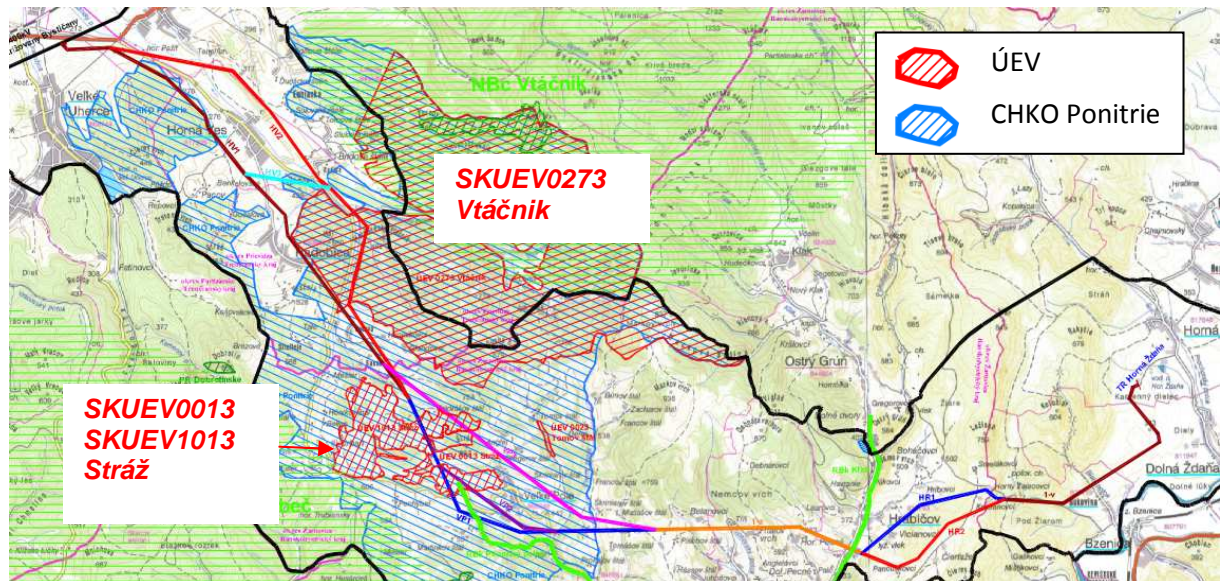


Figure No. 2: Sections of the line crossing the edge of protected areas

2.4 Rationale for the proposed solution

The proposed 2x400 kV power line represents a new element in the transmission system. Main reasons for the realisation and benefits are the following:

- operational safety of 400 kV network
- interconnections of main junction points of the network
- new power supply quality
- strengthening capabilities of national electricity transmission network
- strengthening capabilities of transboundary electricity transmission network
- enhancing the development potential of the Slovak Republic

2.5. Reasoning for the routing

Realisation of the proposed activity – construction and operation of new 2x400 kV line in locality Bystričany – Horná Žďaňa being the 2nd phase of planned 400 kV interconnection of H. Žďaňa – Bystričany – Križovany is linked to the development of 400 kV transmission system, i.e. decommission of old 220 kV system and its replacement by new 400 kV voltage level system. This 2nd phase represents continuation of the interconnection Bystričany – Križovany.

After the first phase of environmental assessment – Preliminary Environmental Study with one single alternative of routing, need for finding alternative routing of the 2x400 kV line was identified, especially with regard to the specificity of the affected area characterized by diffused settlements called „*štále*“ as well as with regard to the importance of **forest land** protection. In this way, new routing – new alternatives were proposed next to municipalities Horná Ves – Radobica (HV), Veľké Pole (VP) and Hradičovo (HR). Three sections of the route are proposed in alternatives. Other sections remain in the originally proposed routing as introduced in the submitted Preliminary Environmental Study.

The final routing could represent one of 18 possible combinations depending on the selected alternatives with bypasses of individual municipalities. Based on the evaluation of impacts and standpoints of affected municipalities and state authorities, the most preferred alternatives in each respective section with regard to individual impacts (i.e. having the lesser negative impact) are the following :

Section Velké Uherce – Banská, **bypassing municipalities Horná Ves and Radobica**, based on the previous assessment, as environmentally equal and suitable can be considered alternatives **HV2** and **HV3**. Alternative HV1 is not acceptable for the municipality Radobica and would imply new intersection of forest complex above Radobica, which would be negatively assessed in regard to the intervention into forest land and habitats of special importance.

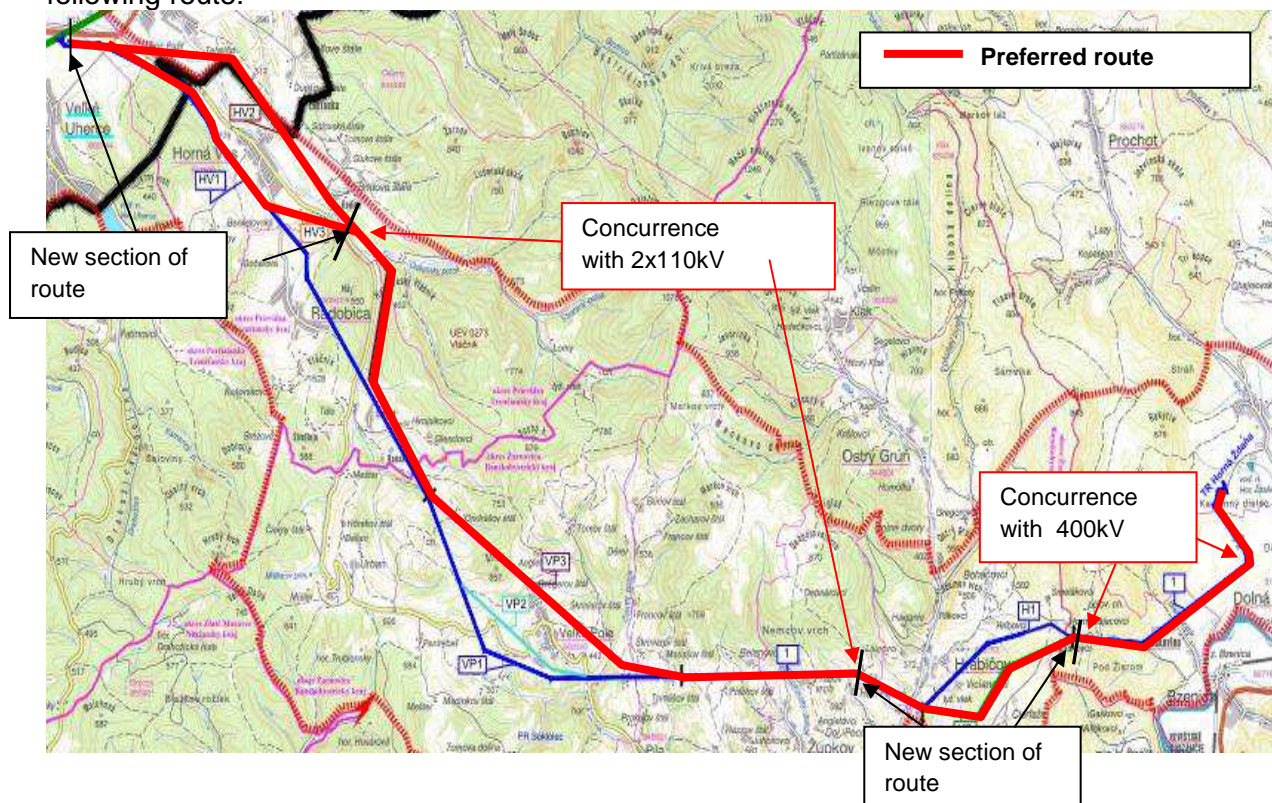
Section Banská – Tomášov štál, **bypassing municipality Velké Pole**, alternative **VP3** is the most preferable of all three alternatives. It implies the lesser negative impact in the respective section (the lesser impact on ÚEV Stráž, bypass of Šmeckov štál as well as bypass of the mining space Velké Pole – Zaller).

Section Hrabičov – Kristiánovci, **bypassing municipality Hrabičov**, the preferable alternative is not clear; however due to non-acceptance of alternative HR1 by the municipality, generally more appropriate is the alternative **HR2**.

Tab.2 :Preference of proposed variants (on sections solved in variants)
Only the impacts with different assessment are selected, or priority impacts from the aspect of variant selection, or commented impacts, the more preferred variant has more preference points*)

Sections	V. Uherce-Banská			Banská-Tomášov štál			Hrabičov-Kristiánovci	
	HV1	HV2	HV3	VP1	VP2	VP3	HR1	HR2
Population, “štál” settlement, recreation	*	**	***	*	*	***	*	***
Acceptability for municipalities	*	**	***	*	**	***	*	***
Impact on forest lands	*	**	*	*	*	***	**	*
Impact on CHÚ/NATURA 2000	*	**	**	*	**	***	***	***
Impact on significant habitats	*	**	*	*	*	***	**	*
Fauna preference	***	**	**	**	**	***	**	**
Number of preference points	8	12	12	7	10	18	11	13

Figure no. 3: Resulting routing after environmental assessment is represented by the following route:



3. Environmental assessment process

3.1 Environmental assessment of the proposed activity

The environmental impact assessment process was introduced into the Slovak legislation by the Act no. 17/1992 Coll. It was further improved by Act no. 127/1994 Coll. on assessment of environmental impacts which took into account the provisions of the EU EIA Directive (85/337/EEC) as amended by the Directive 97/11/EC. After Slovakia's Accession to the EU the environmental impact assessment process was amended by Act 24/2006 Coll. which is now fully harmonised with EU legislation. This act includes the transitional provision that if the EIA process was started prior to 1st February 2006 it will be completed in accordance with the previous Act (127/1994); this provision applies to the Project.

Assessment of plans and projects which could significantly affect Natura 2000¹ sites are set down in Article 6 of the Habitats Directive 92/43/EEC. This Directive was implemented into Slovak legislation by Section 28 of the Slovak Nature and Landscape Protection Act 543/2002 Coll. This legislation requires projects which could affect the Natura 2000 sites in Slovakia to be assessed. The subsequent studies relating to the assessment the potential effects of the Project on the Natura 2000 sites are identified in the table in section 4.2 of this NTS.

The EIA process:

Stage	Description	Date / Author	Public access
1. Preliminary environmental study ("Zamer")	Basic information of proposed activity; variants; actual status of environment in affected territory; assumed affects on environment (specifically land, energy and raw material demands on the environment); evaluation of advantages and disadvantages of proposed alternatives; proposal of mitigation measures	26.4.2012 Party proposing assessed activity ENVIRO-TATRY	Information on "Zamer" advertised by the municipality officials in each affected municipality, the public are invited and have the right to see, review and comment
2. Scoping of assessment	Decision on scope and timeline of environmental impact assessment	9.7.2012 Ministry of Environment	Clearly defined set of measurements and assessments to be made before EIA report is conducted
3. EIA study „Správa o hodnotení“ Environmental Impact Report	Detailed analysis of environmental impacts of various variants and zero variant (i.e. "do nothing" variant)	18.1.2012 Party proposing assessed activity ENVIRO-TATRY	Publicised at the Ministry of Environment's website and the local municipality offices; public have the right to review and to submit comments either in writing or at public hearings
4. Public hearings	Public hearings to the proposed activity in affected municipalities	20.-21. February 2013 details in chapter 3.3	Providing information to general public during several meetings announced sufficiently in advance, providing information about the activity, impacts, and consultations with municipalities. Records from consultations with comments of citizens provided to the MoE
5. Expert review	Opinion of an independent expert on the EIA study	25.3.2013 Independent expert Ing. Oľga Szaboová	An independent review of the study and its conclusions

¹ Natura 2000 sites are those identified as sites of Community importance under the Habitats Directive (92/43/EEC) or classified as Special Protection Areas (SPAs) under the Birds Directive (79/409/EEC).

Stage	Description	Date / Author	Public access
6. Final statement (Final record/opinion)	Recommendation and rationale of preferred variant and determination of conditions under which the preferred variant may be permitted. It also contains replies to public comments.	6.6.2013 Ministry of Environment	Publicised on the Ministry of Environment's website and the local municipality offices

3.2 Involved stakeholders and affected parties

Several state authorities and municipalities were involved in the EIA process and provided with regular information and complete documentation (Preliminary Environmental Study, Environmental Impact Statement), including decisions of the competent authority – MoE. The opportunity (and obligation) to submit standpoints on each single stage of the EIA process to the competent authority was given to all stakeholders.

Naturally, public was regularly provided with information about the whole process in compliance with the Aarhus Convention. Individual steps of the process were regularly published on www.enviroportal.sk and on the websites or public bulletin boards of each affected municipality, etc.

Figure No. 2: Affected municipalities, districts and regions according to the administrative classification



Stakeholders provided with the possibility to submit comments on the activity and being regularly informed on the process are the following:

Affected authorities: Office of the Banská Bystrica self governing region, Office of the Trenčín self governing region
 Regional environmental Office in Trenčín
 Regional environmental Office in Banská Bystrica
 Regional lands Office Trenčín
 Regional lands Office Banská Bystrica
 Regional Office of road transport and roads Trenčín
 Public Health Authority of the Slovak Republic, Bratislava
 Regional Directorate of fire and police brigades Trenčín

Regional Directorate of fire and police brigades Banská Bystrica
 District Environmental office Prievidza
 District Environmental office Prievidza – branch office Partizánske
 District Environmental office Banská Štiavnica - branch office Žarnovica
 District Environmental office Banská Štiavnica - branch office Žiar nad Hronom
 District Office Prievidza - department of civil protection and crisis management
 District Office Žiar nad Hronom – department of civil protection and crisis management
 District forest office Prievidza
 District forest office Žarnovica
 District mining office Prievidza
 District mining office Banská Bystrica
 District Office of road transport and roads Prievidza
 District Office of road transport and roads Žiar nad Hronom
 Regional monuments board Trenčín
 Regional monuments board Banská Bystrica
 Archeological Institute of the Slovak Academy of Science, Nitra
 Civil Aviation Authority of the Slovak Republic
 Slovak Water Management Enterprise, state enterprise, branch office Piešťany
 Slovak Water Management Enterprise, state enterprise, branch office Banská Bystrica
 State Nature Conservancy of the Slovak Republic, Banská Bystrica
 Ministry of Environment of the Slovak Republic – Department of nature protection and landscape development
 Ministry of Defence of the Slovak Republic
 Ministry of Agriculture and Rural Development of the Slovak Republic

Affected municipalities: Veľké Uherce, Pažiť, Oslany, Horná Ves, Radobica, Veľké Pole, Píla, Župkov, Hrabíčov, Bzenica, Dolná Žďaňa, Horná Žďaňa

Sectoral authority: Ministry of Economy SR

Competent authority: Ministry of Environment

One organisation proactively participated in the EIA process: Civic association Medzihorie. Other NGOs were not interested to be involved in the EIA process.

Standpoints of all affected parties on the Preliminary Environmental Study were evaluated and incorporated, where appropriate, into the Environmental Impact Statement (especially introduction of new bypasses of municipalities – alternatives HV2, HV3, VP2, VP3 and HR2) .

Standpoints on the Environmental Impact Statement were reflected in the Expert Review and Final Record issued by the MoE.

3.3 Public hearings

EIAs were discussed at public hearings which were prepared in cooperation with the relevant municipalities. Minutes, which summarise the agenda, questions raised by the participants and the responses of the responsible representatives, were written for each public hearing.

A summary of public hearings undertaken on the EIA Reports can be seen in the Final Statements. Minutes which were written for each of the public hearing are archived at the Ministry of Environment in the official files. They contain the place and date of each public consultation, questions raised by the public and the corresponding responses. The most frequent questions related to property, measures to mitigate the impact of the Project during the construction period and noise mitigation measures during the operation period.

Common public hearings were held for several municipalities upon agreement. Table below summarizes common public hearings:

Location	Affected Municipalities	Date	Notes	Summary of public comments
Bystričany – Horná Žďaňa				
Horná Ves	Veľké Uherce, Pažiť, Oslany, Horná Ves,	20. Feb	Attendees: 18	Collective supporting opinion on the HV3 alternative – i.e. routing of new line apart from municipality Radobica was expressed

Location	Affected Municipalities	Date	Notes	Summary of public comments
	Radobica	2013		from side of attending inhabitants
Velké Pole	Velké Pole	21. Feb 2013	Attendees: 23	Participants were mainly interested in relations between construction and forest land regime, property settlement and impacts of the electromagnetic radiance on human health.
Hrabičov	Píla, Župkov, Hrabičov, Bzenica, Dolná Žďaňa, Horná Žďaňa	21. Feb 2013	Attendees: 27	Participants were mainly interested in relation between construction and forest land regime, width of the protective zone in each sections, property settlement and environmental supervision. Inhabitants of Hrabičov showed interest in realisation of alternative HR2 – outside the built-up area of municipality.

The involvement of the public and the details of the participation of involved parties is described in detail in Stakeholder Engagement Plan (SEP), which will be updated and published regularly on the web pages ebor <http://www.ebrd.com/pages/country/slovakrepublic.shtml>.

You can find more information about the Project also on the web pages of SEPS, a.s. www.sepsas.sk in the section: Documents – Assessment of impacts of buildings on the environment <http://www2.sepsas.sk/VedenieBystricanyZdana.asp?kod=533> for 2. Stage.

3.4 Final Record and Expert Review

Ing. Olga Szabóová, as a competent person for environmental impact assessment, was appointed by the MoE as independent expert for the elaboration of the **Expert Review**. The Expert Review was submitted on 03/25/2013.

MoE of SR issued the final standpoint on 06/06/2013. They recommend the proposed activity for realization and consider the combination of variants **HV3 – VP3 – HR2** as the most convenient routing. Also they recommend the conditions for the stage of construction and operation of proposed activity and set the required extent of after-project analysis.

The negotiation regarding the final discussion about the routing near Hrabičov with the District forest office of Žarnovica preceded the issue of final standpoint on the initiative of MoE. At this negotiation the support of the HR2 variant by the forest office was conditioned by local optimizing of routing in the forest unit Mikušová. Such optimized routing residing in the transfer of the line into the marginal parts of the forest unit was managed to be mutually approved and consequently recommended.

What is following ...

In frame of next preparation phase of the construction the investor will procure:

- elaboration of the project documentation
- engineering works for the authorisation procedure for the construction
- the technical supervision of the construction
- monitoring and environmental supervision of the construction
- the contractor of construction works

Procured planner, engineer, environmental manager and especially the contractor of construction works are responsible for the incorporation and implementation of all environmental measures connected to the project preparation or construction of new 2x400 kV line.

The realization and functionality of all environmental measures will be assessed regularly through monitoring and environmental supervision of construction.

4. Environmental assessment

4.1 Supporting documents and partial surveys

Conducting specific studies needed for an adequate evaluation of the environmental impacts of activities was an integral part of the environmental assessment (as described in chapter 3.1).

The core part of these studies was focused on detailed survey of the current state of the area and impact assessment of activities on each affected environmental component.

Particular studies:

- Geofos, Ltd., Geology and basic evaluation of the engineering-geological conditions of the territory, 2012
- Ing. Libor Ulrych, PhD.: survey on real vegetation and habitats in the affected area, identification of habitats of European and national importance and evaluation of possible impact of activities on these habitats, 2012, The current state of real vegetation in relation to the planned reconstruction of EHV of 2x400 kV was surveyed by the terrain research carried out in July, August 2012. In advance, the points of possible conflict of interest with the interests of environmental protection were identified according to the route of EHV based on the orthophoto images possible occurrence of habitats of European, national importance, possible occurrence of protected species of plants, estimation of elimination of tree vegetation related to the planned extension of PZ of EHV). Except for the broader fields in lower altitudes the whole route of proposed EHV was verified in terrain and for individual homogenous areas the short floristic characteristics were elaborated. Based on the floristic reports the membership to habitats of national or European importance was assessed.
- RNDr. Vladimír Slobodník, CSc.: inventory research of ornitofauna and estimation of presumed impacts of the 2x400 kV line construction on avifauna in the concerned area and on the affected Special Protected Areas (Natura 2000), The aim of this inventory research was to find out the structure of ornithofauna of surveyed locality (number of species) and to estimate the presupposed impacts of construction of 2 x 400 kV power line on the species structure of birdlife (avifauna) in the given area Ornithological research was carried out based on the order of coordinator of complex report in the period from August to September 2012, and the data about nesting of individual species of birds were excerpted from own ornithological records, from the available literature to the surveyed area and from the surveys of ornithologist Karol Šotnára from years 2009 – 2012.
- Transmission Lines Projects, s.r.o.: Power transmission line rated 2x400 kV locality Bystričany – Horna Ždaňa, Technical report – updated version for the environmental impact assessment, May 2012

Results of these surveys are incorporated in the Environmental Impact Statement.

Except for that, an independent terrain research preceded the elaboration of the report focused on the EIA, retrieval of data information, analyses and subsequent syntheses, the result of which is the assessment stated in the EIS, with the extent of 333 pages and 8 annexes. ***The submitted NTS can therefore offer only very short summary of the EIA process of proposed activity and output documentations (Environmental Impact Statement, Final summary).***

4.2. Current state of environment in the affected area

Rock environment: According to the engineering-geological regionalization of Slovakia (Matula, Pašek, 1986) the area of interest is classified into the: region of core mountains – area of core central highlands, region of neovolcanites – areas of volcanic highlands, Neogene tectonic depressions – areas of intramountain basins. Rocks of

individual complexes are classified into the region of flysch rocks (Sf) and the region of mudstone – limestone rocks (Ss).

Near the proposed route of VP1 variant and near west edge of VP2 variant, south from Veľké Pole municipality, there are two deposits of non-designated mineral (building stone), which are in the route of VP1 variant.

In the affected area the contamination of rock environment is presupposed mainly in the areas with the high concentration of industrial production and the sources of environmental burdens. It is mainly the area of Prievidza – Handlová – Nováky (Horná Nitra loaded area) with the mining, energetic and chemical industry, dumps, tailing ponds, mining of mineral raw materials and transport burden.

Soil conditions: In the affected area there are continuous areas of quality agricultural soil concentrated in the Horná Nitra basin (west part of variants HV1, HV2, HV3) and in Žiar basin (variant 1v). In the countryside mosaic of forest growths, arable soil, meadows and pastures and countryside vegetation dominate. In the rugged terrain of mountains Tríbeč and Vtáčnik, through which the sections VP1, VP2, VP3, 1z, HR1, HR2 and eastern part of variants HV1, HV2, HV3 lead, is frequent forest soil with continuous forest, supplemented by agricultural soil used as the permanent grass growths.

Also the intensive industrial activity in the past and in the present contributed to the chemical degradation of soils through the gravitational settling of immissions for the variants HV1-3 from Horná Nitra loaded region and for the section 1v from the Stredné Pohronie loaded region.

Climatic conditions: The smaller part of affected area (at the beginning and at the end of route – in valley parts) belongs according to the clima-geographic classification into the warm climatic area T. The bigger part of affected area belongs according to the clima-geographic classification into the moderately warm climatic area M.

Atmosphere: The biggest share on the pollution of atmosphere has the production of aluminium and energy.

The good quality of atmosphere in these sections is influenced by the occurrence of broad forests in mountains Tríbeč and Vtáčnik as well as the absence of industry or other negative anthropogenic activity.

Surface water: The main concentration streams of surface streams of affected area are the rivers Nitra and Hron. Other important streams in the affected area are: Pažit'ský brook, brook Cerová, Píľanský brook, brook Kl'ak.

Upper and middle section of Nitra is significantly polluted because of an intensive anthropogenic activity. Water in Nitra is long-term affected by waste waters from the mining, chemical, energetic and food industry. Significant impact on the water quality in the area has the brought pollution from the upper part of Hron, which is the recipient of waste waters of engineering and wood processing companies, food industry and also from refinery processing of oil and the production of heating oils.

Groundwater: According to the hydrogeological regionalization the affected area reaches the following hydrogeological regions: Region QN 67 *Neogene and Quaternary of Horná Nitra Basin*, Region MG 69 *Mesozoic and Paleozoic of North-East part of Tríbeč*, Region V 86 *neovolcanites of mountains Vtáčnik and Pohronský Inovec*, Region Q 87 *Neogene of Žiar basin*, Region Q 80 *Quaternary of bottom land of Hron and Slatina*.

The route of new 2x400 kV line does not reach any protected water management area neither any protected area of natural healing sources. The quality of groundwater in river alluvium is affected negatively by increasing agricultural and industrial activity, which causes the exceeding of stated limits for drinkable water

Flora and vegetation: The original vegetation covering changed a lot or almost got damaged by intensive or extensive influence of man. Riparian forests were preserved only as lines of bank growths of most important streams – for example near the stream of Nitra in the affected area. The higher extent of preservation of natural composition of growths can be seen in beech and fir-beech forests in mountain **Vtáčnik**. Overall the growths in forests are often structurally changed or the species are changed with respect to their agricultural use. Typical for **Trábeč** are oak-hornbeam, oak and the beech forests in higher altitudes. The easternmost part of route reaches **Žiar basin**, where the current state of vegetation in comparison to the potential vegetation of affected area is significantly changed, big part of area is anthropogenically strongly influenced and intensively used for agriculture.

The particularity of affected area are vast mowable meadows on mapped localities 44,45 creating an important landscape element. It is rich in species, mainly right under the top of Stráža together with protected very rare species of plants, because of which these areas were included into the system of areas of European interest (ÚEV Stráž). The localities of most precious species will not be affected by the construction of EHV neither by maintenance of PZ of EHV, but they are near it.

Habitats:

Areas with forest or non-forest plant communities close to nature are considered as most valuable localities. These areas of habitats (mainly the forest ones) are the last remains of natural vegetation, they are refuges of original species of plants and to that related animal communities, from which these species can spread again to the surroundings. In the affected area – right in the corridor of proposed route of 2x400 kV line in locality Bystričany – Križovany, during the terrain research the occurrence of following habitats of national and European importance was identified: Ls 2.1 *Quercus-Carpinus betulus* forests, Lk 6 Soaked meadows of mountain and foothill areas, Ls 1.1 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* * 91E0, Ls 4 9180* *Tilio-Acerion* forests of slopes, screes and ravines, Ls 5.1 – 9130 *Asperulo-Fagetum* beech forests, Ls 5.4 – 9150 *Medio-European limestone beech forests of the Cephalanthero-Fagion*, Lk1 – 6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*), Tr1 – 6210 Semi-natural dry grassland and scrubland facies on calcareous substrates (*Festuco-Brometalia*).

Fauna: The species structure of fauna has the character of broad-spectrum representation. Its real biotic value is conditioned by the changes in country which are significant in the affected area. Ornithofauna is represented by species occurring in the ecosystems present on the route of power line. Unambiguously the dominant part is represented by forest ecosystems, agrocenoses (fields, permanent grasslands, meadows) and ecotone communities (linear and group growths of bushes and trees) are represented sufficiently and the smallest part is represented by the water and marsh habitats.

Summary according to the taxonomy of birds: in the wider line of assessed route of EHV 2x400 kV there are nests of: 5 couples of Ciconiiformes, 40 couples of beasts of prey (Falconiformes), 25 couples of owls (Strigiformes).

The route of power line partially leads collaterally with migration routes of Ponitrie (Veľké Uherce – Pažiť - Oslany) and Pohronie (Žarnovica – Dolná Žďaňa), but it also crosses the migration route of birds in Ponitrie in the section Pažiť – Horná Ves and crosses the transits of birds from Vtáčnik to hunting ground on meadows and pastures in the foothills of Vtáčnik in the section Bukovina – Horná Žďaňa.

Countryside:

New 2x400 kV line between localities Bystričany and TR Horná Žďaňa is situated in heterogeneous type of landscape structures, the route begins and ends in the intensively agriculturally used countryside of slightly undulating plain to hilly area of Horná Nitra basin and Žiar basin.

The central and main part of route in the length of circa 22 km leads in highland countryside of southwest margin of mountain Vtáčnik and in short sections reaches the northeast margin of mountain Tríbeč. The landscape structure is represented alternately by areas of agricultural soil on moderate hills (as arable soil, meadows and pastures) and mainly the areas of forest (mainly forest management) growths.

The particularity of the dominant part of affected area is the occurrence of preserved historical landscape structures – so-called “solitary cottager’s” (in the literature its synonym dispersed is often used) settlement. The dispersed settlement originated in this area mainly in connection with the mining industry, woodcutting, charcoal makers and pasturage. This is reflected in the structure of countryside with created typical mosaic of landscape elements of forest, arable soil and non-forest tree vegetation (NDV).

Figure: dispersed settlement in the affected areas from Radobice to Hradičov



Figure: eastern section – plain countryside related to the bottomland of river Hron in the background the foothill of Vtáčnik



Protected areas: The route reaches in the section with the length of circa 10-12km the CHKO Ponitrie with II. degree of protection and within the system NATURA 2000 the ÚEV Vtáčnik and ÚEV Stráž.

CHKO Ponitrie

Declared on 24th June 1985 by the regulation of the Ministry of Culture of SSR no. 53/1985 Coll. on the area of 376.6541 km². The purpose of declaration of CHKO Ponitrie is the protection and enhancement of nature of Tríbeč and Vtáčnik mountains. Both mountains, inconspicuous at the first sight, hide a lot of natural and country values.

Tríbeč belongs among the Mesozoic crystalline mountains from the aspect of geological structure. The package of crystalline core is composed of sediment minerals:

limestone, dolomites, quartzite. The richness of geological subsurface and climate creates the conditions for rich species variety of nature.

From the representatives of fauna of Protected Landscape Area Ponitrie the attention should be paid to the occurrence of Eurasian lynx and wild cat as the original felids. There is also deer, roe and wild boar wildlife in lower altitudes. From the rare birds of prey there is Lesser Spotted Eagle, Eastern Imperial Eagle, Short-Toed Snake Eagle and European Honey Buzzard in the area.

It is necessary to mention also very rare hazel grouse, the number of which is quite low in Vtáčnik.

More than 92 percent of area belongs to the forest land fund. Totally there are 101 species of trees, from which 73 are the original ones. Very rich fauna is the one of thermophilic forest-steppe animals, from which more than 140 species are protected.

In the affected area CHKO Ponitrie reaches the cadastral areas of affected municipalities Velké Uherce, Oslany, Pažiť, Horná Ves, Radobica, Velké pole, Píla, Župkov, Hrabíčov.

The line route in the area of CHKO goes through the cadastral areas Horná Ves, Radobica and Velké Pole in these variants: HV1, HV2, HV3, VP1, VP2 and VP3.

NATURA 2000:

➤ SKUEV0273 Vtáčnik

The area of European interest (ÚEV) Vtáčnik is located in the eponymous mountain Vtáčnik, which is the part of Slovak Central Mountains, also called Slovak Central Volcanites. The mountain was created by tertiary volcanic activity. So the geological structure of mountain is composed mainly of basalt, amphibole and pyroxene andesites.

There are typical steep rocky walls with boulder scree on its foothills of mountain Vtáčnik. Less extreme locations, where there were created cambisols and andosols on volcanic rocks that are typically acid in the highest altitudes, are covered by forest growths. In the lower altitudes there are oak forests, beech and fir-beech forests are most extensive in the area, under the top of Vtáčnika there are original fir forests. In the hardly accessible places there are preserved original, by forest management little affected natural forests, which create home for our biggest predators – bear and Eurasian lynx. The rocks are occupied by beasts of prey.

Only the marginal parts of the mountain have been deforested and changed to meadows and pastures by a man. The settlement is adapted to the farming in these parts, it is dispersed and creates so-called “štále”. This characteristic way of settlement is still preserved in the southwest part of the area.

In ÚEV Vtáčnik there are 13 types of European important habitats that are the subject of protection: 91E0* Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*, 5130- *Juniperus communis* formations on heaths or calcareous grasslands, 6410- Molinia meadows, 6430- Hydrophilous tall-herb fringe communities of plains and of the montane to alpine levels, 6510- Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*), 8150- Medio-European upland siliceous scree, 8220- Siliceous rocky slopes with chasmophytic vegetation, 9110- *Luzulo-Fagetum* beech forests, 9130- *Asperulo-Fagetum* beech forests, 9140- Medio-European subalpine beech woods with *Acer* and *Rumex arifolius* mountain forests, 9180* - *Tilio-Acerion* forests of slopes, scree and ravines, 91G0* - Pannonic woods with *Quercus petraea* and *Carpinus betulus*, 9110* - Eurosiberian stepic woods with *Quercus* spp. The plant species of European importance fork mosses (*Dicranum viride*) grows here. There are also 11 animal species of European importance.

ÚEV Vtáčnik reaches 12 cadastral areas, including affected cadastral areas of municipalities Oslany, Horná Ves, Radobica, Velké Pole, Píla. However, the route of line **reaches** the protected area in the cadastral area of Radobica in variants HV1, HV2, and HV3.

➤ SKUEV0013 Stráž

The area of European interest Stráž is located in the mountain Vtáčnik. The surface area of ÚEV is 19.882ha and is located in the cadastral area of Veľké Pole .

Habitats, which are the subject of protection in this ÚEV: 6210 Semi-natural dry grassland and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important posts of *Orchideaceae*), 6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*),, 9130 *Asperulo-Fagetum* beech forests. The species that are the subject of protection: *Tephrosieris longifolia subsp. Moravica*.

The route of line **reaches** SKUEV0013 Stráž in very short sections by variants VP1, VP2 and VP3.

➤ SKUEV1013 Stráž

The area is included in the protected areas by the amendment of National list of areas of European interest from 2011. The area of European interest Stráž is located in the mountain Vtáčnik. The surface area of ÚEV is 329.04ha and is located in the cadastral area of Veľké Pole, it is the extension of existing SKUEV0013 Stráž with the same subject of protection.

Habitats, which are the subject of protection in this ÚEV: 6210 Semi-natural dry grassland and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important posts of *Orchideaceae*), 6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*),, 9130 *Asperulo-Fagetum* beech forests and 9150 *Medio-European limestone beech forests of the Cephalanthero-Fagion*.

The route of line **reaches** SKUEV1013 Stráž in variants VP1, VP2 and VP3.

Figure: the length of projection of route of individual variants through affected protected areas in metres.

Protected areas	variants									
	HV1	HV2	HV3	VP1	VP2	VP3	1z	HR1	HR2	1v
CHKO Ponitrie	5320	4230	6290	6110	5880	5270	-	-	-	-
ÚEV Vtáčnik 0273	1900	2090	2090	-	-	-	-	-	-	-
ÚEV Stráž 0013	-	-	-	60	60	95	-	-	-	-
ÚEV Stráž 1013	-	-	-	1550	1800	860	-	-	-	-

Population and urban areas:

Affected population lives in 12 urban units – municipalities in four districts. The population of affected area has the connection and relation to several regions and two self-governing regions. The core area of settlement of affected area create the closest district towns (Partizánske, Žarnovica and Žiar nad Hronom).

Important industrial activity is not carried out in the marked affected area. Within the affected area the forest management activity is applied in significant extent – almost in the whole line of the route, mainly from Horná Ves to Hrabíčov. The agricultural activity is besides the forest management the second most important activity in the whole affected area.

Towns Partizánske, Žarnovica and Žiar nad Hronom are important transport hubs of the area, which are however located outside the affected area.

Only one important transport corridor with high intensity of passenger and truck transport goes through the affected area. It is the road I/64 (alongside the bottom land of Nitra, it leads alongside the route of line in the westernmost part of variants HV1-3), as

regionally important one can be considered also the road II/512 direction Partizánske – Žarnovica.

Two so-called environmentally loaded areas reach the **affected area**, which is Horná Nitra loaded area (in the western section of the route of line) and Stredné Pohronie loaded area which is reached by the eastern part of the route of line. The most quality area is in the central part of the route of line in abundantly forested area in the cadastral area of Veľké Pole, Župkov, Hradičovo and Píla, where there is **environment of high quality**.

4.3 Identified Impacts

For the proposed activity – the construction of new 2x400 kV line in sector of Bystričany – Horná Ždaňa locality, the following realities are basically decisive, that affect an assessment of impacts on environment by critical measure:

1. The new 2x400 kV line is largely situated at the presently still existing corridors – left after dismantled lines (220 kV and 2x110 kV), or simultaneously with existing lines (2x110 kV, 400 kV). It means that environmental impacts, which will effect in connection with operation of the new line in given sectors of affected area, already acted or are acting. By operation of the new 2x400 kV line these impacts will renew on the most of area, or they will change in their extent, respectively.
2. The new sectors of line's route – **the bypasses** of built-up territories of municipalities Horná Ves-Radobica, Veľké Pole and Hradičovo **were proposed just for reason of reducing the possible negative impacts on population**, as well as by reason for preserving a specific character of disperse settlements.
3. Given type of activity presents for environment **much more influence during the phase of construction** than during operation.
4. The corridor of proposed line passing through the affected area with higher share of forests in the utmost possible extent utilizes but just deforested parts in the land, which are utilized agriculturally. In case, that corridor should be led through the forest land, existing corridor of dismantled lines, corridor of existing lines or forest edge would be used preferably.
5. The proposed line in both edging parts is situated in the anthropogenic affected landscape - in area of loaded Horná Nitra region, as well as in area of loaded Stredný Hron region.
6. Central section of the line represents ecologically and primarily landscaping area of quality.
7. The route **runs through protected territories** CHKO Ponitrie, ÚEV Vtáčnik and ÚEV Stráž.

In the Environmental impact report all the environmental impacts which are assumed in connection with the construction and operation of the proposed power transmission line rated 2x400kV in a section from Bystričany - Križovany have been identified and described.

We have summarized and evaluated hereafter the most important of the impacts from the viewpoint of their significance. For the purpose of evaluation of significance we have selected the five-degree scale with the following characteristics applied for both the negative and positive impacts:

- **no impact** (the proposed activity shall not affect in any respect whatsoever any environmental component, population or utilization capacity of land, cultural and historical values of the region, etc.);
- **insignificant - negligible impact** (involving, most of all, an impact with the nature of risk, incidental occurrence or a negligible contribution of temporary effect);
- **slightly significant impact** (an impact the operation of which is from the quantitative viewpoint only minimal, with the local impact or an impact on the little vulnerable component of the environment, and/or not perceivable or being subjective, as well as an impact with the nature of risk for a more vulnerable component of the environment and/or otherwise specific area, and the temporary impact with a wider general coverage or direct impact on the population)

- **significant impact** (affecting a wider surrounding or operating in relation to a more vulnerable component of the environment, and/or the perception or the general effects of which are high, as well as the temporary impact with universal effects); and
 - **very significant impact** (distinguished by its regional reach or affecting the most vulnerable component of the environment or ecological capacity, and/or not being in compliance with the appropriate legislative or other standards, and affecting the subject of protection in protected regions, with permanent and irreversible effects).
1. Erosion phenomena and processes throughout the time of construction
 - **slightly significant impact**, on a temporary and short-term basis
 2. Impact on mining of minerals
 - **insignificant - negligible impact**
 - **Alternative VP1 significant impact**
 3. Dust resulting from sites throughout the time of construction
 - **slightly significant impact**, on a temporary, short-term and irregular basis
 4. Noise, dust and emissions from transport throughout the time of construction
 - **slightly significant impact**, on a temporary, short-term and irregular basis
 5. Contamination of water streams throughout the time of construction
 - **insignificant impact**, on a temporary, short-term and irregular basis, with risk
 6. Impact on regime and quality of underground waters throughout the time of construction
 - **insignificant impact**, on a temporary, short-term and irregular basis, with risk
 7. Erosion and mechanical disturbance of soil throughout the time of construction
 - **significant impact**, on a temporary and short-term basis
 8. Occupation of protective lands
 - **insignificant impact**, on a permanent basis
 9. Fellings and occupation of the significant forest biotopes
 - **significant impact**, on a permanent basis
 10. Occupations of significant non-forest biotopes
 - **slightly significant impact**, on a permanent basis (in case of temporal occupations, temporary)
 11. Collision of birds with the electric line
 - **significant impact**, with risk
 12. Creation of new nesting possibilities for birds of prey
 - **slightly significant positive impact**, on a permanent basis
 13. Origin of areas for development of shrubbery in the farming landscape
 - **insignificant positive impact**, on a permanent basis
 14. Creation of deforested lines
 - **insignificant impact**
 - **alternative HV1 slightly significant impact**
 - **alternative HR2 significant impact**
 15. Reduction of the overall ecological stability of the affected region
 - **no impact**
 16. Routing the line via ÚSES_[Territorial System of Ecological Stability] features
 - **insignificant impact**
 17. Increased height of pylons and viewing dominance
 - **slightly significant impact**, on a permanent basis
 - **alternative HV1 and HR1 significant impact**
 18. Conflict of the route with protected areas (CHKO Ponitrie)
 - **insignificant impact**
 19. Conflict of the route with NATURA 2000 areas (ÚEV Vtáčnik)
 - **alternative HV1 insignificant impact**
 - **alternatives HV2 and HV3 slightly significant impact**
 - Conflict of the route with NATURA 2000 areas (ÚEV Stráž)
 - **alternatives VP1 and VP2 slightly significant impact**
 - **alternative VP3 insignificant impact**

20. Disturbance of comfort and quality of life throughout the time of construction
- **significant impact**, on a temporary, short-term, irregular basis
21. Possibilities of employment throughout the time of construction
- **slightly significant positive impact**, on a temporary, medium-term basis
22. Routing the line near the built-up areas of affected settlements
- **slightly significant impact**
- **alternatives HV1, HV2, VP1, VP2, HR1 significant impact**
23. Impacts of the line operation on the state of health of population
- **no impact**
24. Permanent land occupation - pylon sites and restriction of agricultural activity
- **insignificant impact**, on a permanent basis
25. Development of industry
- **slightly significant indirect positive impact**
26. Development of the region
- **significant indirect positive impact**
27. Impact on the regime and quality of waters of water resources
- **no impact**
28. Traffic restrictions throughout the time of construction
- **insignificant impact**, on a temporary, short-term basis
29. Development of local services throughout the time of construction
- **insignificant positive impact**, on a temporary, medium-term basis
30. Impacts on tourist localities throughout the time of construction
- **significant impact**, short-term basis
31. Extending fellings of forest in protective zone
- **slightly insignificant impact**, on a temporary, long-term basis
- **alternatives HV1, HV2, HR2 significant impact**
32. Substitute seeding in the new protective zone of the power line
- **insignificant impact**, on a long-term basis
33. Processing of raw wood after deforestation
- **slightly significant positive impact**
34. Impact on cultural-historical and archaeological localities
- **no impact**
35. Compliance with the governing ÚPD of VÚC
- **insignificant impact**
36. Compliance with ÚPD of affected municipalities
- **insignificant impact**

It results from evaluation that none of impacts reach the degree “very significant”. From the “significant negative impacts” for the complete line, there occur four - risk of erosion and mechanical disturbance of soil, felling and occupation of significant forest biotopes, risk of collisions of birds with the electric line, and disturbance of comfort and quality of life throughout the time of construction. From the “significant positive impacts” only one occurs—development of the affected region.

a) land acquisition

Permanent acquisition of land connected with the proposed construction of 2x400 kV line will affect both agricultural and forest land and relates to individual tower sites:

- presumed permanent acquisition of forest land: ca. 1 600 – 3 200 m² depending on the selected alternative
- presumed permanent acquisition of agricultural land: ca. 6 400 – 7 800 m² depending on the selected alternative

Measures concerning land ownership:

- in the project documentation for zoning decision it is necessary to evaluate proposal of each tower site
- land remains in the original ownership, while registration of an easement for benefit of the proponent (operator) will take place. In frame of the permitting procedure for the construction the developer and land owners have to agree on the procedure and amount of one-off compensation for the land easement or land use restrictions in line with the existing Energy Act
- investor procures an expert for the land plot/real estate evaluation (agricultural land, forest land) and other documentation needed to determine the fair price required for signing the sale
- Compensations for the registration of land easement of directly affected lands under tower sites.
- Compensations (levies) for the permanent occupancy of lands.

Measures concerning quality of soil

- excavated soil from tower sites will be used exclusively as backfill, spread in the PZ surrounding the tower site or used in different way upon approval. Technical and biological remediation of the agricultural land will be realised without delay after completion of construction works
- balance elaboration and humus layer covering of permanently removed soil will be performed
- The movement of machinery on forest roads will be regulated in compliance with the general regulations.
- After the construction works the soil surface will be adjusted to the original state and grassed over in case of requirements.

Temporary acquisition of land:

Access roads: taking into account existing paved and unpaved local roads, paths and forest roads in the affected area resp. close to the corridor of the proposed line, construction of new access roads is not needed.

Construction sites: location of main construction sites is planned at the termination sites of both sections of the proposed line, i.e. Horná Žďaňa and DP Bystřičany

Protective zone: creation, respectively extension of the PZ up to 69, land ownership remains unchanged, limitations caused by the construction of new line or by creation of new PZ will be solved through following measures:

Measures:

- Compensations to users for damages caused on agricultural plantations during construction.
- Forestation of forest soil inside the deforested protective zone and the following care for seedlings according to the environmentally affected and approved project.
- Recultivation of lines of access roads after finishing the construction
- Compensations for the registration of land easement or for restricted use of lands of directly affected lands in the protective zone.
- compensation (payment) for loss of the forest ecosystem services

Management of lands during the preparation and construction of power line

The construction and operation of 2x400 kV line restricts the building construction and also use of forest lands to the extent of created protective zone, in such way that in the area under the line the growths can be grown up to the height of 3 m and in both marginal areas of PZ of the width of 2x20 m growths can reach the height not threatening the line in case

they fall. Common agricultural use of lands is not restricted by the line operation – out of tower sites. All lands in protective zone of line will remain in the ownership of original owners. Only under the tower sites new plots of the category of built-up areas will be created by geometric plan, which will also remain in the ownership of original owners. These new plots under tower sites will as the only ones occupy permanently the forest or agricultural soil. On all lands in PZ of line the easement will be established according to the act on energetics.

Every owner has the claim for one-off financial compensation for the registration of easement or for the restricted use. Since it is public utility construction the investor can apply the process of dispossession, but it has not happened in the history of line construction.

The pay out of one-off compensations is bound to the after-realization demarcation of construction, the elaboration of the after-realization geometric plan and the elaboration of expert review in the field according to the kind of land. The pay out of all owners will be executed during the approval of construction, in case of forest lands before execution of felling.

At the end of EIA process of prepared construction of 2x400 kV line – after determination of recommended route of line in the final statement of MoE of SR the implementation of route into the cadastral map and the primary identification of affected lands in the future protective zone as well as the owners of plots were realized.

There were found more than 1388 directly affected plots with the total number of more than 2 000 private owners. The state participates in the ownership in the relatively big number (circa 40 %), which manages the soil of unknown owners. The part of affected agricultural soil is in use of agricultural cooperatives based on the rental contracts or there are created land associations of owners or private farmers that participate in its use. The affected forest lands are used by state mainly, smaller part is used by municipalities or created land associations of owners.

Engineering organization, which will be chosen by the investor at the beginning of authorisation procedure according to the construction act, thus in the territorial proceeding will contact all owners of plots under proposed tower sites with the proposal of compensation contract. The compensation will be realized in coordination of the engineering organization and the investor SEPS – the Department of Line Investments. The affected owners have the possibility of communication or complaints through the engineering organization and also directly with the investor (the Department of Line Investments, more information in Stakeholders Engagement Plan) or in the administrative proceeding as the participants of territorial, construction and authorisation procedure according to the construction act.

During the project preparation, the authorisation procedure as well as the construction of line, there will be intensive communication and coordination between investor, engineering organization, project organization, environmental manager and construction constructor through official regular check day realized at least once a month.

Users of lands will be contacted by the chosen construction contractor for negotiation of terms of construction – movement of machinery through lands and determination of amount and way of compensation for caused damage on plantations or access roads. They will get the compensation from the chosen construction contractor.

According to the project documentation elaborated for the territorial proceeding or construction proceeding in which the quantities of permanent and temporary occupation of soil and the quantities of felling of grown trees on forest and non-forest soil will be identified, the legal administrative fees (levies) within the authorisation procedure of construction will be paid for:

- Permanent occupation of forest soil
- Temporary occupation of forest soil and permanent restricted use of forest
- Permanent occupation of protected agricultural soil
- The felling of trees growing outside the forest (based on the realized dendrological research with the calculation of social value of trees according to the legislation of nature protection)

During the operation of line, the protective zone will be maintained regularly, that means the regular felling of trees will be realized in it. The operator is obliged to inform competent environmental office about intended felling and to offer realization of maintaining felling to the owners of affected lands for reward.

The summary of possible claims/compensations that will be provided:

Impact	Who is affected-compensated	Compensation
Permanently occupied forest land The loss of forest soil and trees because of the tower site.	Forest office	financial compensation
Permanently occupied agricultural land The loss of agricultural soil because of the tower site.	Regional lands office	financial compensation in case of protected soils (1. – 4. category of quality of soil)
Temporarily occupied forest land The loss of trees because of the creation of PZ and access roads, early deforestation	Forest office	financial compensation
Restricted use of real estates Inhabited houses in PZ	Owner	financial compensation
Restricted use of forest lands Maintenance of PZ of line during lifetime of line, the loss of productive functions of forest	Forest office, owner	financial compensation
Restriction of irrigation in PZ	User	financial compensation
Easement on plots in PZ of line	Owner	financial compensation
Felling of trees growing outside the forest	Municipalities	financial compensation
Damage on agricultural plantations during construction	User	financial compensation – construction contractor
Damage on local roads during construction	Municipalities	financial compensation – construction contractor
Traffic restrictions during construction	Office of road transport	financial compensation – construction contractor

b) Demands concerning the built-up area

Overview of residential houses in the protective zone of the proposed line

Municipality	Number of residential houses crossed by the protective zone of the line – original alternative from the Preliminary Env. Study	Number of residential houses crossed by the protective zone of the line –alternatives from the EIA Report	Number of residential houses crossed by the PZ of the selected route from the Final Statement
Radobica	1 (alternative HV1)	1 (alternative HV1)	0
Oslany	-	1 (alternative HV 2)	0
Velké Pole	3 (alternatives VP1, VP2)	3 (alternatives VP1, VP2)	0

Significant part of the affected area is characterised by diffused settlements – stale, that are currently often used for recreation and rest. The construction can thus affect not only permanent inhabitants but also visitors, who use the affected area for rest. They can be affected by negative impacts of the construction, as well as by possible change of scenery during the operation. This is one of the reasons for introducing new **alternatives (HV2, HV3, VP3, HR2)** into the Environmental Impact Statement and were proposed in that way, that the routing of the line will avoid built-up areas as much as possible.

Measures:

- routing the line in newly proposed alternatives with bypasses of the built-up areas in line with the Final Record

c) Impacts on soil

Impacts on soil are predominantly linked to the construction phase. They mainly represent risk of erosion and soil transport caused by:

- movements of construction vehicles in the corridor of PZ, particularly on arable land
- extension and adjustment of existing unpaved roads
- tree felling in forest vegetation and manipulation with wood
- tree felling in non-forest vegetation

Operation of the power line will have no impact on soil quality.

Measures:

- conditions of transport and construction vehicles will be regularly controlled with regard to potential oil substances spills. The contractor will be instructed on work discipline and works will be performed in the most possible sensitive way
- remediation will be carried out primarily on exposed slopes and other sites
- movement of construction vehicles on forest roads will be regulated in line with general measures. No interventions into adjacent forest land will arise during the construction
- possible storage of material or temporary construction site will be located apart from forest land
- on sites with high risk of erosion temporary panelled supporting bed of access roads will be used
- construction works in hardly accessible rugged sections will be carried out with help of air-cable, eventually by helicopter
- in sections, where the new line will largely sag over the valley, the tree felling will be minimized and related exclusively to the central space of the power line related to cable pulling.

d) Impacts on geology

Inappropriate construction activity during installation of electric power line towers could support the development of geodynamic activity, such as slope deformations and erosion.

In the track of proposed alternative VP1 and at the east edge of alternative VP2, southwards from municipality Velké Pole, two mineral deposits for building stone are located. The track of line in alternative VP1 is in conflict with the mineral deposit Velké Pole – Zaller with existing mining activity.

Operation of the power line will have no impact on geology.

Measures:

- construction in section Velké Pole has to be realised only in alternatives VP2 or VP3

- suitability of ground soil or geology of each tower site will be examined by an expertise, eventually by a detailed engineer-geological survey, if necessary
- field works will not be performed in seasons of stronger or long-lasting rains
- the construction will be realised by mobile devices in order to eliminate soil contamination by oil substances in case of emergency situation

e) Impacts on hydrology

Impacts on surface waters are linked only to the construction phase with higher risk level. They represent risk of water streams pollution in relation to:

- movements of transport and construction vehicles on access roads
- long-term presence of construction vehicles on construction sites

A relatively greatest risk is linked to the spill of oil substances from construction vehicles. The most sensitive in this regard are water streams threatened by works carried out in their vicinity and directly by transits of construction vehicles. Seasons of higher water levels and heavy rains can be problematic as well.

Operation of the line will have no impact on hydrology.

Measures:

- transits of construction vehicles across water streams are not recommended, the transits of streams by construction vehicles is not desirable, the project of accesses will be created so that the transits of streams and entry of construction vehicles into streambeds could be prevented
- tower sites will be located as far from water streams as possible
- works performed close to stream-banks have to be planned for periods apart from high water level seasons and activities in the vicinity of stream-banks have to be restricted to the necessary minimum
- if the stream-bank stabilisation is needed, vegetative measures are to be applied

f) Air

During the construction phase transport and construction vehicles will have effect of mobile sources of air pollution and will produce flue gas emissions on access roads and on the construction site. Individual construction sites will represent diffuse sources of air pollution, that will produce increased dustiness.

Operation of the line will not cause any air pollution. Waste heat can be produced during the operation in the immediate vicinity of the line and thus imply warming and air drying. However, such changes will be of a minor nature having no impact on the overall change of the air temperature.

Measures:

- measures to eliminate influence on comfort and quality of life are to be applied – see point s)

g) Waste

During construction of the 2x400 kV line waste will be produced by following activities:

- felling of trees and shrubs
- earth and foundation works
- installation of towers and cable pulling
- dismantling and displacement of other lines
- presence of workers

Routine operation of the line will not produce any waste.

Measures:

- re-useable waste will be temporarily stored in the area of PZ or at both line termination points (DP Horná Žďaňa, DP Bystričany), from where it will be transported for re-use. Waste will be disposed according to the contract and in line with legislative requirements
- proper waste disposal during the construction will take place under agreed conditions in line with the building permit. All workers, contractors and subcontractors must be instructed on the waste treatment
- the replaced 220 kV line has to be properly dismantled and liquidated, arable land has to be returned to original state after the temporary occupancy of land is over.

h) Impacts on habitats nad flora

note: the assessment of impacts on flora, habitats, fauna and protected areas including NATURA 2000 was realized based on the following partial researches:

- *Ing. Libor Ulrych, PhD. : survey on real vegetation and habitats in the affected area, identification of habitats of European and national importance and evaluation of possible impact of activities on these habitats, 2012*
- *RNDr. Vladimír Slobodník, CSc.: inventory research of ornithofauna and estimation of presumed impacts of the 2x400 kV line construction on avifauna in the concerned area and on the affected areas NATURA 2000 - also stated in the chapter 4.1*

Negative impacts of the proposed activity – construction and operation of 2x400 kV line in section Bystričany – Horná Žďaňa on vegetation are presumed mainly during the preparation phase and during the construction (tree felling, movement of construction vehicles in the PZ of the line and on access roads during earth works at tower sites, installation of towers, cable pulling), which will imply further situations:

- permanent intervention into parts of continual forest vegetation of mountains Tribeč and Vtáčnik and into diffused forest formations on agricultural land (following intrusion of aggressive species in the deforested areas of extended corridor is presumed)
- interventions into non-forest linear vegetation of riparian formations, hedges, windbreakers, shrubs along the erosion rills etc. linked to the elimination of vegetation
- disturbance of meadows
- possible disturbance of wetlands due to transits of construction vehicles
- potential, unintended introduction of non-native and invasive species caused by transition of construction vehicles
- increase of synantropisation and ruderalisation, which will lead to expansion of weed species
- eventual planation of terrain depressions with the use of excavated material can lead to further decline in biodiversity of the area
- possible contamination of water streams caused by oil substances spills from construction vehicles will have indirect effect on degradation of water or riparian vegetation

This will lead to permanent occupation of habitats by installed towers.

Temporary occupation of habitats is connected with the use of several non-paved access roads and movements of construction vehicles within PZ of the new line.

As regards the direct impacts of construction of the proposed 2x400 kV line on vegetation, these are especially linked to **tree felling in forest and non-forest vegetation**. The future extent of felling depends on the selected line routing alternatives. Options for felling minimization are specified in the list of measures.

As regards the impact on **habitats of European importance**, the evaluation can be performed by defining the share of the affected area to the overall area of that particular habitat within respective bio-geographic region. Such intervention, relating to any combination of alternatives, will not lead to changes of the habitat's acreage within the bio-geographical region by more than 0,1 %, so the **favourable status will be preserved**.

Measures:

- basic measure lies in selection of the appropriate alternative. As regards the intervention into the forest and non-forest habitats, taking into account the quantitative extent, alternatives HV2 and VP3 can be preferred
- tree felling within the new PZ will be reconsidered in terms of its minimization, while possibilities set by the Article 5 (§ 43) of the Energy Act No. 251/2012 will be used with regard to keeping vegetation in 5 m distance from the edge conductors, taking into account the height of towers (possibly the deforested zone will not fully cover the PZ and the maintained vegetation will not endanger lines in case of their fall)
- tower sites will be proposed in such way, that coomb, erosion rills, riparian formations and alluvial deposits of rivers and streams will be bridged as much as possible
- works located close to, or within wetland habitats will be performed exclusively during dry season eventually apart from the growing season. The movement of construction vehicles in wetlands and water-logged areas will be forbidden
- all available measures to avoid extension of ruderal and invasive vegetation should be used
- installation of towers in areas of linear non-forest vegetation is undesirable
- manipulation with conductors during cable pulling will be minimized in sections crossing non-forest, mainly linear habitats of significant importance
- grown tree felling on the agricultural land will be minimized – only high-growing tree species will be removed, low-growing shrubs will be kept or removed only in inevitable extent due to cable pulling
- during works inside the forest area principles regarding protection of habitats and species must be respected
- access roads to towers will be established within existing forest and field roads
- tree felling (extension of the PZ) will be realised apart from the growing season
- rigorous application of revitalising measures has to be ensured

i) Impacts on fauna

Construction activities in protective zone of the line will cause disturbance on fauna, which will lead to temporary abandonment of the respective area by mobile species of animals. Nesting possibilities for birds will get worse due to expanding tree-felling only locally, without impact on nesting possibilities of criteria and other important forest bird species. Realisation of tree felling and construction activities **apart from nesting season** will eliminate the devastation of possible active nests, respectively nesting in surrounding vegetation.

Comparing with the current state the risk of bird collisions caused by the construction of new 2x400 kV line will increase. Massive three-bound cables are better visible for birds, moreover line-marking elements will be installed in selected spans.

The routing of electric power line interferes with 2 bird migration routes:

- migration route of Nitra river, in the affected area parts of Pažit' – Horná Ves
- migration route of Hron river, in the affected area parts of Bukovina – Horná Žďaňa

An integral part of the project of 2x400 kV line construction will be **installation of line-marking elements** in selected tower spans to minimize the risk of bird collisions, as well as installation of artificial nests for raptors on selected towers. Compared to the current state, both measures will significantly improve environmental parameters of the proposed activity as regards birds (avifauna).

Measures

- tree felling will be carried out apart from the growing and nesting seasons and migration periods (from September to the end of January), in line with the existing legislative
- a survey on occurrence of nesting bird species in the concerned area will be performed prior to tree felling, if necessary. Felling of cavity trees in forest should be realised only after expert evaluation of possible remediation measures resulting from potential occurrence of protected cavity-nesting species (e.g. bats).
- in order to avoid possible birds collisions with cables of the line, better visibility of cables will be secured in selected sections (crossing migration route in sections Pažit' – Horná Ves and Bukovina – Horná Žďaňa), eventually on further sites recommended under coordination of nature conservation authority
- construction works with high disturbing impacts on forest areas will be restricted as much as possible in spring time of reproduction and juveniles flying out
- measures to avoid killing or injuries of animals have to be applied (such as excavations temporary covered etc.)
- with the aim to avoid non-suitable building of nests on towers, artificial bird boxes for nesting raptors will be installed on selected towers upon consultation with the State Nature Conservancy
- in forest sections or other sites artificial nesting boards will be installed
- realisation of the construction in forest complex close to nests of bird species of special importance has to be carried out in a way, that will not threaten the nesting bionomy (regarding both timely and spatial meaning)
- exposure of the land cover and the remediation to the original status should be of short-term nature in order to avoid binding of animals to these sites
- backfills of spaces entered by rain or groundwater have to be carried out with regard to possible occurrence of animal species in spring time. Prior to the restoration of terrain depressions and excavated sites a remediation-survey, collecting and relocation of animals to substitutive areas will be performed (mainly amphibians)

j) Impacts on landscape structure

Network of overhead power lines is already present in the affected area, so the proposed activity will not represent a completely new element in the landscape. Moreover, track of the proposed line will be in several parts situated in side run to the existing corridors of overhead lines (400 kV, 2x110 kV).

Negative impacts on landscape structure will cause the tree felling linked to crossing linear elements of the non-forest vegetation. However, with regard to its extent, this impact will not be of significant importance. The level of impact of the operation on forest landscape structure will be frequently influenced by inevitable tree felling in the protective zone of line running in mosaic forest complexes in the entire affected area.

Measures:

- basic measure is the selection of appropriate alternative – in this case, with regard to the diffused settlement („štále“) - alternatives HV2 and VP3
- measures to minimize impacts on biota have to be applied – 4.2 h)

k) Impacts on landscape scenery

The corridor of the new 2x400 kV line is mainly visible in plain-terrain sections and in the forest landscape, where the line can be intensively perceived due to the deforested corridor of protective zone, as well as in sections visible from viewpoints, or inhabited areas.

Perception of the new element will be significant in plain sections (Oslianska and Žiarska kotlina), i.e. in open agricultural landscape characterised by dense concentration of different lines and frequent roads as significant elements for visual perception. In centre of the affected area (from Radobice to Hrabíčov), the corridor of line is better „hidden“ in hilly or mountain landscape. However, in regard to the forest landscape the line is more perceived due to the visible deforested corridor, even only in exposed high sections or in localities intensively perceived due to the vicinity of settlements.

The particularity of this part of affected area is dispersed settlement - called „**štále**“. Štále were created during the development of mining industry in 14th century. The basic function of „solitary cottager’s“ settlement was to enable the cultivation of soil in remote places of terrain. The main distinctive feature is the presence of isolated building objects (minimum of 3) with surrounding agriculturally used small-block lands (arable soil lands, permanent grass growths and orchards). This dispersed settlement in the affected area remained roughly in the original form and shape, but it does not fulfil its primary function – permanent residence. Mainly the function of so-called „second residence“ – cottage dwelling comes into focus.

In this regard and from the visitor’s point of view, value of the landscape can be negatively influenced. For these reasons preferable are alternatives proposed farther from settlements.

Measures:

- basic measure is the selection of suitable alternative – in this case taking into account the specificity of affected with diffused settlements called „**štále**“ – alternatives HV2, VP3 and HR2.

l) Impacts on landscape stability

Construction and operation of the line will have no impact on the total ecological stability of the affected area.

m) Impacts on protected areas (national network)

The route of the proposed line 2x400 kV in approximately 10-12 km long section (depending on the preferred alternative) passes through the Protected Landscape Area Ponitrie under the 2nd degree of protection. The line crosses quite continual forest complex of oak-woods, oak-hornbeam and mixed forests with introduced non-native tree species. Creation of new corridor of protective zone is needed, which means intervention into this forest vegetation.

Among the forest habitats of significant importance, being subject of the protection, following habitats of European importance are present in the respective part of Protected Landscape Area (inside the corridor): Ls 1.1 *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior** * 91E0, Ls 2.1 *Carpathian oak-hornbeam forests*, Ls 4 9180* *Tilio-Acerion forests of slopes, screes and ravines*, Ls 5.4 – 9150 *Medio-European limestone beech forests*.

The minimum extents of possible intervention into forest habitats within the Protected Landscape Area represent alternatives HV2 and VP3. Their greatest asset is location alongside with the track of existing 2x110 kV line, thus with already existing impacts on the territory.

Within the deforested corridor in Protected Landscape Area grassland habitats of European importance were identified: Lk1 – 6510 *Lowland hay meadows*. Tr1 – 6210 *Semi-natural dry grasslands and scrubland facies on calcareous substrates* and a habitat of national importance Lk 6 *Mountain and lowland wet meadows*

It has to be mentioned, that the regular yearly maintenance of the protective zone, i.e. felling of successive trees will lead to improvement of the favourable status.

Essential for the total impact on the territory of Protected Landscape Area is the fact is, that this alternative proposal for the line routing means realisation of completely new construction.

Among proposed alternatives, HV2 and VP3 are preferred due to the lesser intervention into habitats of European importance, though running closer to the centre of the Protected Landscape Area. The preference of these alternatives results from the fact, that they are proposed as side-run of the already existing 2x110 kV lines. This means, that the existing corridor will be extended and no new activity will be introduced in the area such as new corridor that could disturb existing linkages in the forest ecosystem.

Main subject of protection in part of the area crossed by the proposed line is the landscape created by diffused settlements from times of German colonisation, called „štále“, characterised by single houses or groups of houses. These settlements expanded in the past with growing families and are usually named after them. Taking into account the subject of protection, building of new overhead lines is non-suitable due to violation of the landscape scenery. More suitable is preference of alternatives in corridors of existing line (such as **VP3** and **HV2** alternatives).

It can be stated, that the realisation of the construction will have no significant impact on the subject of protection under the condition, that proposed measures will be respected.

Measures:

- selection of alternatives with minimum impacts – HV2 and VP3
- 2nd degree of protection has to be rigorously respected during the construction within the Protected Landscape Area Ponitrie. Extent of works, location of towers or construction of access roads will be coordinated by the State Nature Conservancy of the SR
- substitute out-planting of trees in the protected landscape area Ponitrie (eventually leaving the PZ to natural succession) will be coordinated with the nature protection authority
- measures to minimize impacts on habitats have to be applied – 4.2 h)
- measures for elimination of impacts on fauna must be respected – part i)

n) Impacts on sites of Natura 2000 network

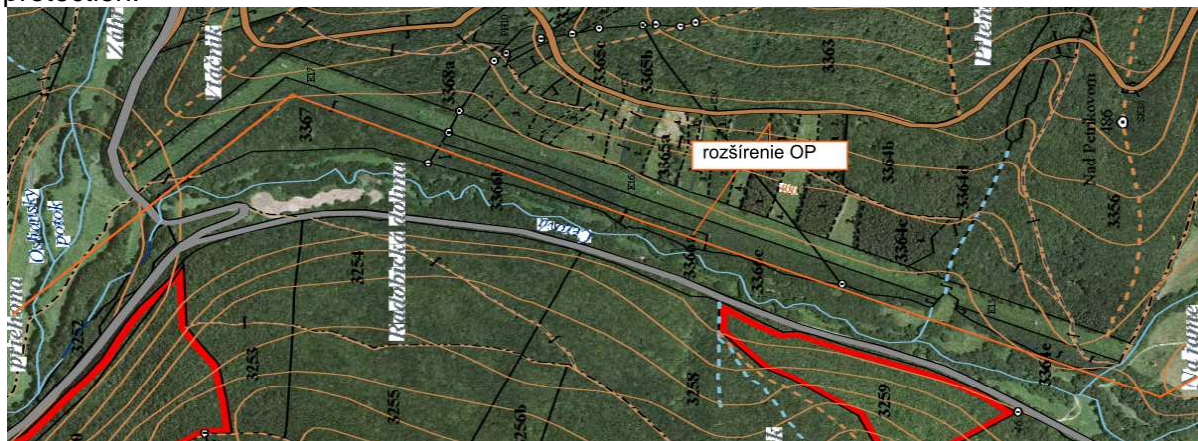
ÚEV Vtáčnik (SKUEV0273)

The route of proposed 2x400 kV line intervenes into the edge of territory of Natura 2000 network – **Site of Community Importance (ÚEV) Vtáčnik (SKUEV0273)**. The site has been designated for preservation of natural oak-woods, in some areas with developed primary forest structure being habitats of big beasts

13 types of habitats of European importance are subject of protection in the ÚEV, thereof only one habitat was identified in the track of line: **habitat Ls 1.1 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (willow – poplar forests) *91E0** in the common section of alternatives HV2 and HV3 in Radobica valley next to the meander of water stream Cerová.

Through technical and technological measures significant minimization of intervention into the respective important habitats is possible. Namely, outline closer to the existing 2x110 kV line in 35 m long sections running alongside water stream Cerová (ca. 2 km). At the same time, towers in the respective section (ca. 4pcs) will be raised as high as possible and the tree felling for the PZ will be carried out up to 5 m from the edge conductor, i.e. the felling will

take place up to 50 m from the axis of existing 2x110 kV line. „Thanks“ to such shift of protective zone, tree felling will be necessary only on forest land (where the dismantled line already ran) in sufficient distance of the stream and apart from riparian vegetation of water stream Cerová. Such measures significantly remedy the impact of the proposed line on the ÚEV Vtáčnik as regards possible intervention into important habitat being subject of protection.



In case proposed measures are respected, the presumed intervention into the habitat Ls1 will affect the area maximum 500 m², thus having no negative impact on preservation of the favourable status of the ÚEV.

If possible minimization of the intervention is secured (by using innovative technical and technological practices during the construction, as described above) and suggested respecting of technological measures, the favourable status of the habitat Ls1.1 in CHVÚ Vtáčnik can be preserved.

Other subjects of protection will not be influenced by the construction.

SKUEV0013 Stráž and SKUEV1013 Stráž

The area of SKUEV0013 comprises ca. 20 ha and is situated in the mountain Vtáčnik. Habitats being subject of protection in this ÚEV are the following: 6210 *Semi-natural dry grasslands and scrubland facies on calcareous substrates*, 6510 *Lowland hay meadows*, 9130 *Asperulo-Fagetum beech (blossomy) forests*.

The area of SKUEV 1013 Stráž was included in the list of protected areas by amendment of the National list of sites of European importance in 2011. The subject of protection are mostly grasslands, same as in SKUEV0013.

Within the ÚEV, habitat 6510 *Lowland hay meadows* was identified directly in the track of alternatives VP1 and VP2, with large mowed meadows creating significant landscape element.

Anyway, there is no assumption, that the main subject of protection as well as sites of occurrence of protected flora species will be directly affected by any alternative of the construction of extra high-voltage transmission (EHV), or by maintenance of the protective zone of EHV line. On the contrary, removal of wooden plants growing on the grassland and meadows during past decades without any management, can improve the favourable status of the subject of protection.

Among proposed alternatives, **VP3** is preferred, as it does not intervene into the subject of protection and the track of line crosses the territory of SKUEV1013 in the shortest corridor.

For the final **evaluation of cumulative impacts**, that could occur in the affected areas on protected sites, existence of several 2x110 kV power lines in the area is of greatest importance, as well as realisation of the activity in forest formations as the intervention into forest has significant impact.

As regards the overall impact on protected areas (taking into account direct intervention into habitats) the most **preferable seem to be alternatives outlined as side-run with the existing lines, i.e. HV2 and VP3**. Creation of new corridor with similar impacts on protected areas is not desirable in the affected area.

If the proposed measures are fulfilled, no impact on the subject of protection in ÚEV Vtáčnik neither in ÚEV Stráž by the proposed activity is presupposed.

Measures

- taking into account the fact, that the proposed track of 2x400 kV line enters the territory of UEV Vtáčnik and UEV Stráž, both being sites of Natura 2000 network, respecting of all measures concerning the management of this area is inevitable, with priority of environmental supervision during the construction phase
- construction works in UEV Stráž a ÚEV Vtáčnik will be carried out under coordination of the nature protection authority
- in case installation of tower on the territory of ÚEV is necessary, the concrete site will be proposed in cooperation with nature protection authority. The number of towers will be minimized. Movements of construction vehicles will be restricted and coordinated with the nature protection authority
- in case temporary installation of panels on vegetation cover is necessary in order to enable movement of vehicles during the construction, following recovery grassing using appropriate site-specific species has to be secured without delay, including further management
- in sections crossing the territory of UEV Stráž alternative VP3 has to be implemented
- alternatives HV2 or HV3 along the Cerova water stream within UEV Vtáčnik can be realised under condition of minimizing interventions into riparian vegetation in line with Article 5) (&43) of the Energy Act No. 251/2012 setting conditions for maintenance of vegetation up to 5 m distance from the edge power line conductors
- during the construction along the water stream Cerová the intervention into riparian vegetation has to be minimized by raising towers with conductors as high as possible
- measures to eliminate impacts on habitats have to be applied – 4.2 h)
- measures to eliminate impacts on fauna have to be respected – part i)

o) Impacts on the territorial system of ecological stability

The proposed 2x400 kV line in location Bystričany – Horná Žďaňa will have no impact on the functioning of each affected component of the territorial system of ecological stability. Functionality can be only temporary limited during construction of the respective section of the line.

p) Impacts on urban complex, land use an infrastructure

Indirect positive impact on industry is represented by the production and surface treatment (galvanization) of new towers needed for the construction of new line.

Current users of existing field and forest roads will be temporary limited during the construction phase.

Operation of the line will have a temporary impact on the operation of that infrastructure, where modifications or displacements related to the construction of new 2x400 kV line is presumed. It relates especially to lines 110 kV and 22 kV.

Forestry will be affected by construction and operation of new 2x400 kV line, both in positive and negative way. The most significant activities of the proposed project with regard to the effects on forestry are the following:

- permanent (frequent) tree felling in the extended PZ of the line corridor
- temporary tree felling – in case of adjustments of existing access roads
- afforesting and maintenance of planted trees in the new PZ

- restoration of temporary occupied sites

Operation of the line will slightly increase permanent negative impact on agricultural land-use on arable land, which is related to the permanent occupation of land assigned for tower sites.

Measures:

- measures to eliminate impacts on vegetation have to be applied – part g)
- measures to eliminate of disturbing impacts on the life comfort and quality have to be applied – part s)

r) Impacts on cultural and historical monuments

Based on current knowledge, no impacts of construction or operation of the line on cultural and historical monuments are presumed.

Based on current knowledge, no impacts of construction or operation of the proposed line on the existing archaeological and paleontological sites are presumed. One of further requirements for the next construction preparatory phase (zoning decision) is the standpoint of competent Monument Board on the line construction.

Measures:

- archaeological survey in line with the Act No. 479/2005 Coll. has to be performed during the preparatory phase of the proposed line construction

s) Manpower demand

The daily manpower demand during construction of the line is estimated in the amount of about 50 - 100 workers, who will work on the installation, preparatory fieldworks, tower basements concreting and transport of materials. Manpower will be hired locally by contractors from local inhabitants (depending on the required skills).

During the operation phase manpower will be needed for maintenance and control of the line.

t) Disturbance of comfort and quality of life

Impacts on the population are presumed mostly during the construction phase. These will result from the movement of transport and construction vehicles on the access roads including crossing affected municipalities. Inhabitants will be temporary and irregularly exposed to increased noise, dustiness and transport emissions production, as well as increased level of noise and dustiness from construction sites and movement of vehicles in the corridor of power line. These impacts will have temporary and irregular effect.

Great part of the affected area is characterised by diffused settlements „štále“, being currently often used for recreation and rest. Construction can affect not only the permanent inhabitants but also the visitors that use the affected area for rest. Presumed negative impacts can arise from the construction but also from possible change of scenery during the construction. For this reason, new alternatives were proposed in the Impact Assessment Statement with the aim to avoid built-up areas as much as possible.

In regard to the location of the corridor and visual exposure of some sections, in relation to the operation of the new line, negative perception can be noticed from the side of affected inhabitants.

Operation of the line will not create new barrier or dividing effects in the structure of affected settlements.

Partial economic benefits for population of affected settlements can be identified as positive impact that results from:

- financial compensation for the land easement for owners of the affected lands

- financial compensations for the temporary occupancy of agricultural and forest land during construction
- financial compensation for restrictions in land use in the PZ during the operation of new 2x400 kV line

Measures:

- taking into account the overall impact on population, the most important measure is to prefer alternatives HV3, VP3 and HR2
- movement of construction vehicles will be allowed exclusively on existing access roads defined in advance. Existing local, field and forest roads will be used as first. The existence of such roads will be checked during a field survey. Construction of new access roads is possible only within the corridor of PZ of the line
- unpaved access roads will be maintained in good technical conditions during works, so any unwarranted widening of used roads will be avoided, as well as erosion and changes on habitats
- paved roads will be regularly cleaned
- fieldworks will not be executed during long-term dry seasons in order to minimize the dustiness.
- mobile devices will be used during construction in order to eliminate the contamination of soil by oil substances in case of emergency situation
- condition of transport and construction vehicles will be regularly controlled with regard to possible spills of oil substances. The contractor will be instructed on work discipline, works will be carried out with high level of sensitivity
- installation works will be carried out in such way, which will not restrict or endanger the road transport

u) Health risks

No impacts on population and its health are expected in relation to construction works.

As regards the operation of the proposed 2x400kV line, taking into account its nature and especially location of the line mainly outside the build-up and permanently inhabited areas, no impacts on the population health are presumed.

.For the proposed activity – 2x400kV line in locality Bystričany – Horná Žďaňa, in the frame of next phase of preparation the project documentation (for the zoning decision) an expert study will be elaborated, that will evaluate the assumed level of electric and magnetic fields in regard to the hygiene limits set by the existing implementing legislation. Results of this study will be taken into account and the projected construction will be modified accordingly (e.g. revising the height of towers when creating the longitudinal profile of the line), so that the operation of the power line complies with hygiene limits.

Electromagnetic radiance produced by the operation of new 2x400kV line will have no impact on human health as far as the standard STN EN 50 341-1 is respected, which does not permit permanent presence of people inside the PZ of line.

Measures:

- The implementation of results of expert review elaborated by certified organization for elimination of impact of electromagnetic radiation on the health of population into the next project preparation within the documentation for the zoning decision process.

v) Transboundary impacts

The proposed activity – construction of power transmission line rated 2x400kV Bystričany – Horná Žďaňa will not cause any transboundary impacts or affect the neighbouring countries.

Further measures

- emergency plans for disposal of possible oil substance spills will be integral part of documentation for the proposed construction.
- use of sand for backfill is prohibited, for this purpose effective sorbents must be prepared in advance (Vapex, milled clay etc.). For these emergency situations it is necessary to have built-up isolated space for storing contaminated soil
- standard respecting of existing technical, technological, organisational and safety regulations related to the construction and operation of the proposed type of activity
- regular control and maintenance of construction vehicles and further technical devices used in the field must be secured in order to eliminate the risk of spills of oil substances and other dangerous substances into soil and water and thus the risk of indirect impact on vegetation
- prior to the application for authorisation of felling of non-forest vegetation according to the Act on nature and landscape protection it is necessary to evaluate the public tree value based on dendrological survey in line with the ordinance No 24/2003 Coll. of the MoE SR. Replacement planting in line with ecological principles or financial compensation for damage in the amount corresponding to the public value of felled trees are to be included in the project documentation
- rigorous respecting the national and European legislation
- maintain the environmental impact on the project through preparation and implementation of special project for monitoring (see part 5)
- establishment of environmental supervision of the construction for selected sites or sections of the line construction with the aim to control the construction works, respectively for supervision of respecting proposed measures, as a monitoring tool during the construction phase (see part 5).

Occurring negative impacts are mostly of local nature, with different level of importance. Most of them are reversible and reducible through appropriately proposed environmental measures (as mentioned above).

Spatial distribution of presumed overloaded sites

Taking into account the nature of proposed activity, the existence of potentially overloaded sites relates exclusively to the construction phase. Resulting from the analysis of presumed extent, spatial demands and means of realisation, as well as preliminary timeframe of the construction works, relatively most loaded will be sections or sites of the proposed line corridor, where combination of following phenomena is presumed:

- termination areas of the proposed line
- longer forest sections where tree felling will be necessary
- relatively burdensome accessible and rugged sections
- sections of line getting closer to borders of built-up areas of affected municipalities
- sections with higher density of reinforcing towers
- technologically demanding junction points where crossing and displacement of other overhead lines is necessary
- directly effected areas or close surroundings of important habitats

Based on to the above criteria, following significantly overloaded sites are presumed:

1. Junction point Velké Uherce (cadastral area Velké Uherce Pažit'

- section with expected intense construction activity related to the establishment of junction area of the new 2x400 kV line with reinforcing towers at the point of mouth of planned 2x400 kV line into 2x400 kV line locality Bytričany – Křižovany, being the 1st phase of the planned 400 kV interconnection Křižovany – Bystričany – Horná Žďaňa.

- measures to eliminate impacts on disturbance of comfort and quality of life have to be applied – part 4.2 t)

2. Section with local bypass Horná Ves – Radobica

- section with expected intense construction activity in the vicinity of built-up area of Radobice in case of alternative HV1. This section is demanding also in regard to the technical nature of the construction in bottom land of water-stream Cerová in side-run with the existing 2x110 kV line V7747/7747 in Radobica valley in case of alternatives HV2 and HV3

- measures to eliminate impacts on disturbance of comfort and quality of life have to be applied – part 4.2 t)
- proposed solution: selection of alternatives HV2 and HV3 – in this case measures to eliminate impacts on habitats and protected areas have to be applied – 4.2 h) m) n)

3. Forest sections

- sections relating to all alternatives with expected direct interventions into forest ecosystems, that are represented by areal tree felling in the protective zone. Within the forest vegetation, interventions into following important habitats is presumed: Ls2.1 – *Carpathian oak-hornbeam forests*, Ls 1.1 *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (willow – poplar forests)** 91E0, Ls 4 9180* *Tilio-Acerion forests of slopes, scree and ravines*, Ls 5.1 – 9130 *Asperulo-Fagetum beech (blossomy) forests*, Ls5.4 – 9150 *Medio-European limestone beech forests*. Further interventions into the forest formations in Protected Landscape Area Ponitire and Site of Community importance Vtáčnik are presumed as well.

- measures for elimination of impacts on habitats and protected areas have to be applied – 4.2 h) m) n)

4. Grasslands in cadastral area Velké Pole

- section where all alternatives cross the UEV Stráž with occurrence of important grassland habitats, that have to be respected. Measures minimizing the movement of construction vehicles have to be rigorously followed.

- measures for elimination of impacts on habitats and protected areas have to be applied – 4.2 h) m) n)

5. Diffused settlement Radobica – Hrabičov

- increased activity in calm settlements „štále“ in cadastral area Radobica, Velké Pole, Píla, Župkov and Hrabičov can be expected. These areas are often used for recreation and rest.

- measures to eliminate disturbance of comfort and quality of life have to be applied – part 4.2 t)
- alternatives located farther from built-up areas have to be realised – HV2, VP3 and HR2

6. Point of the mouth into DP Horná Žďaňa (cadastral area Horná Žďaňa)

-section with expected intense construction activity related to the establishment of permanent construction site, resp. storage spaces in the area of the distribution point. Crossing and displacements of other overhead lines in the termination area of the proposed 2x400 kV line is presumed as well

- measures to eliminate disturbance of comfort and quality of life have to be applied – part 4.2 t)

Operation of the new line will not cause any changes in the current environmental load of the affected area. Some parts will be affected due to location in environmentally loaded areas, resp. along transport lines with noise and emissions from intense traffic (II/52, I/64)

All environmental measures identified in the Final Record of the MoE SR will be transferred to conditions for each step of the following authorisation procedure for the construction (zoning decision, building permit, final building approval)

Economic benefits

The positive impacts of the proposed activity can be divided into three levels:

1. National level

The proposed 2x400 kV line represents new element of the transmission system that will increase the operational safety of 400 kV network, connect the junction points and especially, ensures new quality of connections, which will strengthen capabilities of the national as well as cross-border electricity transmission system and enhance the development potential of SR.

Realisation of proposed activity – construction and operation of new 2x400 kV line in locality Bystričany – Horná Žďaňa being the 2nd phase of planned 400 kV interconnection between H. Žďaňa – Bystričany – Křižovany is connected with the gradual decommission of old 220 kV system and its replacement by new 400 kV voltage level system

2. Regional level

The proposed 2x400 kV line will increase the industrial and consumer potential in region around Hron river and in case of construction of the 400 kV substation in Bystričany, also in upper region of Nitra river.

3. Local level

During the construction phase new temporary – midterm working possibilities will be created. The contractor will use local services in effected areas, mainly accommodation, catering and business.

Environmental assets

Creation of new nesting possibilities for raptors by installing artificial nests on selected towers of the proposed 2x400 kV line can be listed among environmental assets of the proposed activity. Due to absence of solitaire shrubs and trees in the open agricultural land usually the only possibility for nesting of raptors on towers of overhead lines. Experience from similar projects has proved success in this regard.

Another asset for avifauna is installation of line-marking elements in selected tower spans that minimize risks of collisions of migrating bird species with the line. In the current system of affected corridors of 2x400 kV line such elements are missing.

Further asset is the new management of grasslands with occurrence of important species and habitats, as the removal of wooden plants growing on the grassland and meadows during past decades without any management, can improve the favourable status of the subject of protection.

Construction and operation of the new 2x400 kV line in locality Bystričany - Horná Žďaňa is in the routing of preferred variant HV3 in section Horná Ves, alternative VP3 in section Velké Pole and alternative HR2 in section Hrabíčov environmentally convenient and technically feasible and will completely respect the existing environmental legislative, regulations regarding human health protection, as well as normative requirements on the work safety, technical realisation and solutions for emergency situations.

5. Health and safety risks

No impacts on population and its health are expected in relation to construction works.

As regards the operation of the proposed 2x400kV line, taking into account its nature and especially location of the line mainly outside the build-up and permanently inhabited areas, no impacts on the population health are presumed.

For the proposed activity – 2x400kV line in locality Bystričany – Horná Žďaňa, in the frame of next phase of preparation the project documentation (for the zoning decision) an expert study will be elaborated, that will evaluate the assumed level of electric and magnetic fields in regard to the hygiene limits set by the applicable implementing legislation. Results of this study will be taken into account and the projected construction will be modified accordingly (e.g. revising the height of towers when creating the longitudinal profile of the line), so that the operation of the power line complies with hygiene limits.

Electromagnetic radiance produced by the operation of new 2x400kV line will have no impact on human health as far as the standard STN EN 50 341-1 is respected, which does not permit permanent presence of people inside the PZ of line.

The construction of the 2x400 kV line and the way of its operation will minimize risks of subjective as well as of objective nature. Regarding the way of realisation of the proposed activity is it not possible to exclude risks linked particularly to the safety at work during the construction of the line.

From this point of view, the risk is linked with the fact that the new line is in the entire affected area routed along with the existing lines and the construction – installation of towers and cables will be performed mostly during operation of these lines. Relatively greatest risk can arise during unfolding and regulation of cables, as well as when taking down cables from capstans and installing them into isolating chains. The above mentioned risk identification results into following proposal of working conditions:

- earthing (grounding) devices on capstan and retarder have to be used when unfolding cables
- conductors must be earthed on the tower construction by using counter-rotating capstan with earthing device
- when connecting capstan and main clamp the conductor must be earthed
- during installations on towers the working place must be earthed
- workers must be informed about the possible danger arising from induced voltage
- the way of pulling cables and earthing must be prescribed in the project documentation together with requirements on the work safety being binding for the contractor

Operational risks can be implied by factors directly connected to the operation of the line (release or falling of the cable, or tower), eventually by factors not connected to the operation (seismic, atmospheric etc.). Risky situations as regards the work safety can arise during regular maintenance or repairs of the appliances.

In the past 30 years no such potential risks were noticed. These cases are avoided by regular, so called technical monitoring of all lines performed by field inspections or from the air (e.g. helicopter).

6. Follow-up environmental supervision and monitoring

Following the impact assessment process the environmental impact on the construction will be maintained through the follow-up process.

As a part of the next project preparation phase for the construction in frame of the permission process as well as during the following construction and operation of the proposed activity a monitoring system will be elaborated. Monitoring will be performed in three phases: ex-ante (prior to the construction), during the construction and during the operation. The idea of the monitoring as described in the Impact Assessment Statement suggested long-term monitoring of biota in relation to the project, namely monitoring of vegetation and bird species. Monitoring will be executed on selected monitoring sites, eventually line sections connected with the occurrence areas of important non-forest or forest habitats, eventually important bird habitats.

The aim of the project is in particular:

- to record the base situation in the area in advance prior to the construction
- to identify changes during the construction phase
- to evaluate real level of impacts in comparison with the expected level
- to evaluate the state of art and development after completion of the construction (running phase)

The coordination with project and engineering organization for placing of towers with the aim to apply environmental criteria of placing of tower sites is specific part of the monitoring in the phase before the construction.

Specific part of the monitoring in the stage during construction will be system of environmental supervision of the construction. This means direct control of construction Works in filed with the aim to control respecting of proposed environmental measures and their proper implementation and ad-hoc guiding on construction in concrete situations.

The regular reports of environmental supervision will be sent to the building office and particular affected municipalities, where they will be available for the public.

7. Conclusions

The Environmental Impact Assessment (EIA) was carried out in compliance with the applicable national and European legislation.

The EIA documentation was elaborated on expert level, all required surveys and evaluations were carried out.

It can be concluded, that public was sufficiently and regularly provided with information about the proposed activity. The activity was publicly consulted and no negative objections were raised.

Similarly, no disclaimer opinions from the side of affected municipalities or state administration authorities were submitted. Comments of stakeholders were formulated as proposed measures or requests for modifications. Relevant requirements were accepted and incorporated.

Affected municipalities actively participated in the process, mainly through searching for and proposing suitable routing solutions in respective cadastral areas in order to find the most suitable alternative for citizens/inhabitants.

Several modifications were added within the Final Record issued by the competent authority (MoE) as result of multilevel assessment and commenting on the original routing proposed by the proponent.

All problematic sections of the proposed construction were avoided thanks to the environmental assessment in course of the entire process with participation of all stakeholders: affected municipalities, state authorities and civic organisation Medzihorie, especially by creating new alternatives in selected sections of the line.

It follows from the assessment that none of impacts reaches the extremely significant degree. There are four significant negative impacts – risk of erosion and mechanical disruption of soil, felling and occupation of forest habitats, risk of collision of birds with the line and the disturbance of comfort and quality of life of population during construction. There is one positive significant impact – development of affected region.

Locally – some variants show significant degree of impact with respect to the particularities in the given section of route in variant sections.

All impacts are relievable through the realization of proposed environmental measures.

It can be also declared, that a significant impact on the subject of protection on Sites of Community Importance ÚEV Vtáčnik and UEV Stráž, as well as on the subject of protection in Protected Landscape Area Ponitrie arising from the proposed activity is not presumed, under the condition of respecting proposed measures.

From the aspect of routing, the proposed activity causes the least negative environmental impacts with its localization in the line of newly proposed variants in two equivalent routes – the line composed of variants HV2-VP3-1z-HR2-1v and the line composed of variants HV3-VP3-1z-HR2-1v.

MoE of SR recommends for the realization of proposed activity the routing in combination of variants **HV3 – VP3 – 1z – HR2 – 1v**, because of the possibility of local optimizing of routing of line in the forest unit Mikušová (HR2). All involved parties including the public agreed on this assessed route with the realization of proposed measures.

In these terms environmentally evaluated project can proceed to the next phase, i.e. zoning and building permission process that requires the Final Record of the MoE including recommended measures as output of this assessment.

The public that was involved in the process of assessment of impacts on the environment (EIA) as well as all owners of affected lands have the right to be participants also of the following authorization procedure of the construction according to the construction act.

During the phases of project preparation within the process of land and construction proceeding and during the phase of construction there will be following possibilities for the submitting of public grievances:

- on the webpage www.sepsas.sk there will be the link for the interactive form enabling to send the grievance online

- in the particular affected municipalities the forms for submitting the grievance will be available in the municipal authorities. These forms will be collected regularly and submitted to be solved.
- the contact data of the constructor of building and the responsible person to who it is possible to submit the urgent grievance will be on a public place in the affected municipalities
- there will be the possibility to look at the documents with the current condition of the project with the contact details of the proponent or the responsible person for the given building section in the permitting building offices.
- During the construction a responsible person will be designated for receiving and current solving of delivered grievances for the given section.
- During the whole construction there will be a central place for public contact at disposal (SEPS)
- The program of involvement of the public will be published similarly as NTS on the web pages of EBOR (<http://www.ebrd.com/pages/country/slovakrepublic.shtml>).