

## INTRODUCTION

The proponent, namely, Slovenská elektrizačná prenosová sústava, a.s. (*Slovak Electricity Transmission System, Plc*) (“SEPS”) submitted a preliminary environmental study of the “Power Transmission Line Rated 2×400kV Lemešany - Moldava” to the Ministry of Environment of the Slovak Republic (“MŽP SR”) in August 2006, which represents one of the components of development and gradual reconstruction of the transmission system in the Slovak Republic.

Upon taking up this step the process of Environmental Impact Assessment (“EIA”) has been triggered, to be performed in accordance with the Act No. 24/2006 Coll., on Environmental Impact Assessment, published by the National Council of the Slovak Republic.

During a period from August 2006 to July 2007 the following steps of the assessment process have been implemented so far, in particular:

1. Development of the Preliminary Environmental Study and its delivery to MŽP SR - August 2006
2. Comments on the project presented by the affected bodies and the population - August 2006 to September 2006
3. Issuance of the scope of assessment – November 2006
4. Development of the Environmental Impact Report for the Phase 1 of the project and its delivery to MŽP SR – March 2007
5. Standpoints to the Environmental Impact Report by the affected agencies and the population - April 2007 – May 2007
6. Public hearing held with regard to the Environmental Impact Report – May 2007
7. Development of an independent expert’s review regarding the Environmental Impact Report and its delivery to MŽP SR - June 2007 – July 2007
8. Publishing the final statement of MŽP SR for the Phase 1 of the project – August 2007

At the end of 2006 and at the beginning of 2007 new objective circumstances arose within the framework of the further project preparation, which repeatedly opened technical and timing issues regarding the implementation of the Phase 2, namely, 2x400kV line TR Lemešany - ES Košice section. **That is why the submitted Environmental Impact Report only includes an assessment of the Phase 1 from the Preliminary Environmental Study, which represents the construction of the new 2x400kV line along TR Moldava – ES Košice** as the present priority part of the whole project of the new 2x400kV Lemešany - Moldava line. Conditions of the issued scope of assessment are considered in the Report correspondingly which means that those relating to the Phase 1 route have been considered.

Assessment of impacts of the project Phase 2 (i.e. 2x400kV line along TR Lemešany - ES Košice) on environmental conditions has been hereby postponed and the Phase 2 will be the subject matter of a separate assessment.

The submitted documentation presents a generally comprehensible final synopsis of the Environmental Impact Report for the Phase 1 of the project, being of non-technical nature.



Counties: Košický  
Districts: Košice - vicinity, Košice II  
Municipalities: Čečejevce, Cestice, Veľká Ida, Šaca - city district of Košice  
Cadastral areas: Čečejevce, Cestice, Veľká Ida, Železiarne, Šaca

Routes of both the proposed alternatives of the designed 2x400kV line begin at the point of connection to TR Moldava and continue eastward up to the area of the proposed electrical station (“ES”) to be built next to Košice industrial park.

## **5. TIMING**

Date of commencement of the construction: 2008  
Date of completion of the construction: 2009  
Date of commencement of operation: 2009

## **6. ALTERNATIVES**

Ministry of Environment of the Slovak Republic determined through its decision ref. 9315/06 - 7.3/ak, dt. November 14, 2006 in accordance with section 30 of the Environmental Impact Assessment Act No. 24/2006 Coll. and after perusing the submitted project, while considering the delivered standpoints of the affected parties, in collaboration with the department body and decision makers and after discussing with the proponent the scope of the assessment, in which it determined, in addition to the Zero Alternative, for the further and more detailed assessment of impacts of the proposed activity “Power Transmission Line Rated 2×400kV Lemešany - Moldava”, alternatives 1 and 2 referred to in the submitted preliminary environmental study, as well as a new alternative for section 1.

In view of that the Environmental Impact Report has only considered the Phase 1 of the original project, representing the construction of a new 2x400kV line along the TR Moldava - ES Košice section, the original Alternative 1 of the preliminary environmental study (without any alternative design), as well as the new Alternative 2, representing a new one for the original section 1, has been considered in the Report together with the Zero Alternative.

Separate alternatives of the 2x400kV line within the framework of the Phase 1 are from the technical point of view almost equivalent and were designed so that to minimize the impact of the construction on environmental conditions and to observe to the maximum possible extent even the requirements of land owners. In both the end sections (approx. two thirds of the whole route) both the proposed alternatives are distinguished by a common course and differ by different routes in their central part.

### **6.1 Zero Alternative**

Maintenance of the single-direction supply of Košice Industrial Complex by means of the aged and defective line rated 2x220kV from Lemešany to Košice.

### **6.2 Alternative 1**

(TR Moldava – R1 – R2 – R3 – ... – R9 – R10 – R11 – R12 – ES Košice)

Route of the new 2x400kV line from TR Moldava up to ES Košice begins at the new outlet portals in TR Moldava leading southward and after approx. 200 meters sharply turns

eastward, crosses the 110kV line from Moldava to Kechnec and after approx. 300 meters turns at R3 corner north-eastward to R4 corner located at the constructed 2x110kV line No. 6730/6799 to the left from the Čečejevce – Seleška reinforced road. The route continues from point R4 in parallel with the existing 2x110kV line No. 6730/6799 on its southern side, at an axial distance of 40 meters and at a length of 6,310 meters on the farming land, where it marginally penetrates the protective zone of Čečejevce – Seleška field airport. Later on, it crosses twice the national road I/50 and is terminated approx. 400 meters on the left side from the road at R7 corner in its concurrence with the 110kV line and independently continues to the east, where it crosses the road I/50 once again and later on southward from Šaca the Class III road Šaca - Veľká Ida and further on the road Šaca - ES Košice and is connected from the north by means of one double tower and two simple towers designed for the 400kV line (R9 – R12) to the new Košice electric station (“ES Košice”).

**Alternative 1** considers installation of forty-five (45) towers, of that thirty-one (31) type DONAU "N" (supporting ones); twelve type DONAU "V, RV" (reinforcing ones); and two type MAČKA. The number of turning points (corners) is twelve (12). Overall length of the new line: 12,310 meters.

### **6.3 Alternative 2**

(TR Moldava – R1 – ... – R5 – R6A – R7A – R8A – R9A – R7 – R8 – ... – R12 – ES Košice)

Route of the new 2x400kV line is identical up to corner R6A with Alternative 1. Length of its concurrence with the 2x110kV line is approx. 1,500 meters only. At corner 6A the route sharply turns to the north-east and crosses the 2x110kV line and continues on the arable land within the protective zone of Čečejevce – Seleška field airport, after which it enters the forest area of Dúbrava - Dobogov, in which it runs at a length of 1,360 meters. After leaving the forest it runs on the arable land and repeatedly crosses the 2x110kV line and at corner R7 once again merges with the route of Alternative 1, along which it crosses the road I/50 and later southward from Šaca the Class III road Šaca - Veľká Ida and further on the road Šaca - ES Košice and is then connected from the north by means of one double tower and two simple towers designed for the 400kV line (R9 – R12) to the new Košice electric station (“ES Košice”).

**Alternative 2** considers installation of forty-four (44) towers, of that twenty-eight (28) type DONAU "N" (supporting ones), fourteen (14) type DONAU "V, RV" (reinforcing ones) and two type MAČKA. Number of the turning points (corners) is 15. Overall length of the new line: 11,748 m.

## **7. IMPACTS OF THE ALTERNATIVES**

### **7.1 GENERAL TECHNICAL AND ECONOMIC ASSESSMENT**

#### **Zero Alternative**

A significant circumstance from the viewpoint of operation of the new 2x400kV line is that the implementation of the proposed task, i.e. the Phase 1 of the 2x400kV project consisting in interconnection of TR Moldava and TR Lemešany, is the precondition of implementation of the following Phase 2, namely, replacement of the 2x220kV Lemešany - ES Košice line by the new one rated 2x400kV, especially, in spite of that by commissioning the Phase 1 (TR Moldava - ES Košice) the conditions to remove the 2x220kV Lemešany - Košice line will be created without any necessity of the substitute power supplies to Košice industrial complex, as it will be at that time already supplied by means of the new 2x400kV line from TR Moldava and its consumer requirements will be thus satisfied.

### **Alternative 1, Alternative 2**

The costs have been specified on the basis of indicators of similar constructions and the known information referring to the proposed construction, as available at the time of development of the Environmental Impact Report. They include only the construction of 2×400kV line (materials, assembly) and making the site accessible. The total costs of construction of the new line rated 2×400kV amount to:

**Alternative 1 - approx. SKK 314,000,000.00**

*N.B.: The above costs are to be added with the costs of geological, geodetic and design works, author's supervision, environmental supervision, monitoring, payment of damages, various local and administrative fees, operations connected with completion of the construction, costs of rehabilitation, deforestation and financial compensation for the easement under the pylon foundations and in the protective zone of the new 2×400kV line.*

*Specific additional costs regarding Alternative 1 are the costs incurred by occupation of significant biotopes to the minimum extent (see the significant biotope No. 2 – bank growths of Čečejovský stream).*

**Alternative 2 - approx. SKK 312,000,000.00**

*N.B.: The above costs are to be added with the costs of geological, geodetic and design work, author's supervision, environmental supervision, monitoring, payment of damages, various local and administrative fees, operations connected with completion of the construction, costs of rehabilitation, deforestation and financial compensation for the easement under the pylon foundations and in the protective zone of the new 2×400kV line*

*Specific additional costs regarding Alternative 2 are the costs incurred by felling within LPF, LPF reclamation, occupation significant biotopes to the minimum extent (see the significant biotope No. 2 – bank growths of Čečejovský stream, significant biotope No. 3 – forest complex Žobrák - Dúbravy), increased costs of the double crossings of 2x110kV line, as well as the costs spent for the purpose of daily obstacle markings of the line because of its passing through the Čečejovce - Seleška airport protective zone.*

Positive impacts resulting from the economic benefit of the proposed activity are divided into three levels:

#### **1. All-national level**

The new line will create preconditions for the subsequent possibility of transversal interconnection rated 400kV in the north-south direction in the future, thus strengthening the inland interconnection and contributing to the desired condition that the system operation is not restricted by bottlenecks and is capable of coping even with the increased imports of electric power in the event of insufficient domestic sources, due to shutting down EBO - V1

*[Nuclear power plant Jaslovské Bohunice].*

#### **2. Regional level**

The proposed line rated 2x400kV represents a new feature of the transmission system, which will increase safety of the 400kV network operation and, especially, assure the new quality of power supplies to Košice Industrial Complex, with an indirect impact on the further development of the industries and the region.

#### **3. Local level**

Temporary employment opportunities will be created due to the proposed one-year period of construction.

## **7.2 IMPACT ASSESSMENT SUMMARY**

### **Zero Alternative**

In view of that the operation similar to the proposed project has been carried out now in the affected region since a longer time ago (as the network including 100kV and 22kV lines is located there), the implementation, and/or lack of it has at the stage of operation of the existing or a new line no impact on the region development and brings forward no significant qualitative differences in respect of the impacts on separate components of environmental conditions.

Said in other words: in the event of a not implemented construction of the power transmission line rated 2×400kV the overall development of the region would be independent of the activity in question and it would depend on a wide range of different impacts and activities, however, in particular as follows:

- nature of the subsequent management on LPF *[forest land resources]* and PPF *[agricultural land resources]*;
- changes of technical infrastructure of settlements (water pipe lines, gas pipes, sewerage system, waste water treatment plants); and
- traffic concentration.

From the viewpoint of environmental impacts the only difference is between the not implemented construction and that of the new 2×400kV line resulting from that in the event of failure to implement the proposed activity temporary effects of the one-year construction would not take place so as they have been identified, described and evaluated. We have selected the most significant of them:

- permanent felling operation would not be implemented in the future protective zone (“OP”) of the new line in Alternative 2;
- permanent line-type felling in connection with the crossings of the line non-forestry vegetation or bank growths would not take place;
- the population would not be exposed to temporary and irregular effects (noise, dust, emissions) resulting from the movement of building machinery through the occupied area of certain affected settlements;
- no risk of possible impact on water sources would arise;
- eye perception would remain at the original (customary) level; and
- employment opportunities over the time of the line construction would not be created.

### **Alternative 1, Alternative 2**

Regarding the project, the following circumstances are mainly significant, as they affect in the decisive measure the environmental assessment:

1. The new 2x400kV line will be located in an intensively agriculturally exploited and considerably anthropogenically affected landscape, located at the background of the city of Košice, within the area of impact of the industrial complex.
2. The specified type of activity means for the environmental conditions a much bigger impact during the state of construction than that of operation.
3. Corridor of the proposed line is located in monotonous farming lowland, without any extraordinary landscape or ecological significance.

### Acceptability of activity for the affected municipalities

Over a period of the previous step of the process of environmental impact assessment resulting from the proposed activity (the Preliminary Environmental Study) no rebuttals and negative attitudes were recorded on the part of the population.

The crucial circumstances from the viewpoint of the proposal for routing the corridor of the new power transmission line rated 2×400kV regarding the affected municipalities, are as follows:

#### *Municipality Čečejevce*

The corridor routing complies with its map depiction contained in ÚPN VÚC of Košický County. The line circumvents the municipality from the north and merges after the PD area with the existing corridor of the 2x110kV line. The municipality has already positively commented in writing on the project.

#### *Municipality Cestice*

The corridor routing complies with its map depiction contained in ÚPN VÚC of Košický County. The housing area of the municipality is located outside the area of the corridor line and the line considered within Alternative 1 runs in the vicinity of the municipality district Rudolfove lazy. The corridor routing is identical with the existing 2x110kV line corridor throughout the cadastral area.

#### *Municipality Velká Ida*

The corridor routing complies with its map depiction contained in ÚPN VÚC of Košický County and is identical with the existing 2x110kV line corridor. Alternative 2 in the cadastral area is conducted across the forest complex Žobrák - Dúbravy. Lines of both the alternatives are designed outside the municipality housing area.

#### *Municipality Šaca - city district of Košice*

The corridor routing complies at its beginning with its map depiction contained in ÚPN VÚC of Košický County, when the proposed line is located in the 2x110kV line corridor, however, it leaves after a short distance this corridor and is conducted in parallel from the southern side and thus avoids the southern tip of Šaca housing area and after a short distance comes from the west to the industrial area.

### Region assumed anthropogenic load

The new 2x400kV line will be installed within the new protective zone line 78 meters wide. The crucial environmental issue is the long-term occurrence and movement of building machines and mechanisms inside the corridor in question and necessity of access of these machines and mechanisms to the corridor inside from the existing public roads.

The immediate area of the line corridor forms part of the neighbouring, intensively exploited farming land with a generally low degree of ecological stability but various ecological resistance, when the vulnerable components of environmental conditions include, above all, the surface waters, air and original vegetation and fauna insulated in individual natural biotopes within the framework of the farming land.

In the construction stage of the proposed line the anthropogenic load in the immediate area of the line corridor and along the access roads will be increased. Its duration will be identical with that of the building works the implementation of which has been scheduled for one year.

Rate of the anthropogenic load will depend on the actual execution of building works, and/or application of the number of particular environmental measures for the construction

stage. One may however conclude that the building works will not cause any disproportionate impacts on the most vulnerable components of environmental conditions and that the effects regarding the air will be negligible, while the effects regarding surface waters are distinguished by the nature of risk and the effects regarding individual natural biotopes are reversible and can be mitigated.

#### Layout of assumed overloaded localities of the region

Existence of possible overloaded localities is exclusively bound in view of the nature of the proposed activity with the construction stage. An analysis of the expected scope, territorial claims and method of construction, as well as the construction timetable show that relatively most loaded will be those sections or localities within the area of the proposed line corridor, where the joint operation of some of the following phenomena will meet:

- areas with the installation of temporary construction yards;
- line terminal areas;
- sections requiring a more extensive felling;
- sections where the line comes near the borderlines of housing areas of the affected municipalities;
- sections with more densely installed reinforcing towers;
- directly affected areas or immediate vicinity of significant biotopes;
- directly affected ÚSES [*Territorial System of Ecological Stability*] features; and
- crossings of water streams.

We assume that based on the above criteria the following areas will be loaded as follows:

#### 1. Section R4 – R5 near Čečejevce (both Alternatives)

It involves the section where direct interference with the significant biotope No. 2 – bank growths of Čečejevský stream – consisting in the felling of grown woody plants is assumed and where the water stream - Čečejevský potok, which at the same time meets the function of local biocorridor is crossed in the section in question. In its vicinity (from both sides of the stream) an installation of the reinforcing towers is considered – corner points R3 and R4 – and the line comes near the borderline of Čečejevce municipality housing area, with the scheduled arrivals and departures of building machines through the municipality area.

#### 2. Section across the forest growth Žobrák - Dúbravy (Alternative 2 only)

It involves the section where direct interference with the significant biotope No. 3 – forest complex Žobrák – Dúbravy – consisting in a flat felling of grown woods on a surface covering more than 10ha is assumed. This locality also meets the function of the regional biocentre.

Operation of the proposed 2x400kV line will not create any overloaded localities in the area.

The existing environmental load of the affected areas will not be changed by the new line operation and the affected area will continue to be loaded, above all, by the extensive square area of farming land and its intensive agricultural exploitation, a part of which is formed by the load caused by noise and emissions from intensive traffic on the road I/50 (with the above load being of a line-type nature), while the eastern part of the area will continue to be a part of the city environment of Košice – the core of Košice-and-Prešov endangered area, with the direct location of Košice Industrial Complex.

### Environmental pluses

We may characterize as environmental positives of the proposed construction the origin of new possibilities for nesting of birds of prey, in so far as just in the vicinity of the affected area nesting of certain kinds of birds of prey on V.H.V. line towers has been noted.

Another benefit consists, as well, in the origin of new areas to grow new shrubbery in the farming landscape, given by the presence of towers.

### Evaluation of the impacts significance

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 2×400kV in a section from TR Moldava - ES Košice 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).

In view of the proposed Alternatives which do not differ in respect of their technical and technological parts **we do evaluate** the significance of impacts **jointly for both the Alternatives** and we only mention the different impacts specifically (if for each Alternative individually):

1. Erosion phenomena and processes throughout the time of construction
  - *slightly significant impact, on a temporary and short-term basis*
2. Dust resulting from sites throughout the time of construction
  - *slightly significant impact, on a temporary, short-term and irregular basis*
3. Noise, dust and emissions from transport throughout the time of construction
  - *slightly significant impact, on a temporary, short-term and irregular basis*
4. Contamination of water streams throughout the time of construction
  - *insignificant impact, on a temporary, short-term and irregular basis, with risk*

5. 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
6. Erosion and mechanical disturbance of soil throughout the time of construction
  - ***slightly significant impact***, on a temporary and short-term basis
7. Impact on significant biotopes throughout the time of construction
  - ***ALTERNATIVE 1: slightly significant impact***, on a temporary but reversible basis
  - ***ALTERNATIVE 2: very significant impact***, on a temporary but reversible basis
8. Implementation of permanent - repeated felling
  - ***ALTERNATIVE 1: slightly significant impact***
  - ***ALTERNATIVE 2: significant impact***
9. Collision of birds with the electric line
  - ***significant impact***, with risk
10. Creation of new nesting possibilities for birds of prey
  - ***slightly significant positive impact***, on a permanent basis
11. Origin of areas for development of shrubbery in the farming landscape
  - ***slightly significant positive impact***, on a permanent basis
12. Creation of deforested lines
  - ***ALTERNATIVE 1: insignificant impact***
  - ***ALTERNATIVE 2: significant impact***
13. Reduction of the overall ecological stability of the affected region
  - ***ALTERNATIVE 1: insignificant impact***
  - ***ALTERNATIVE 2: slightly significant impact***
14. Routing the line via ÚSES<sub>[Territorial System of Ecological Stability]</sub> features
  - ***ALTERNATIVE 1: insignificant impact***
  - ***ALTERNATIVE 2: significant impact***
15. Increased height of pylons and viewing dominance
  - ***significant impact***, on a permanent basis
16. Conflict of the route with protected areas
  - ***no impact***
17. Disturbance of comfort and quality of life throughout the time of construction
  - ***slightly significant impact*** , on a temporary, short-term, irregular basis
18. Possibilities of employment throughout the time of construction
  - ***slightly significant positive impact*** , on a temporary, medium-term basis
19. Routing the line near the built-up areas of affected settlements
  - ***insignificant impact***
20. Impacts of the line operation on the state of health of population
  - ***no impact***
21. Temporary land occupation
  - ***slightly significant impact***, on a temporary, short-term basis

22. Permanent land occupation - pylon sites
  - *slightly significant impact, on a permanent basis*
23. Development of industry
  - *slightly significant indirect positive impact*
24. Impact on the regime and quality of waters of water resources
  - *no impact*
25. Traffic restrictions throughout the time of construction
  - *ALTERNATIVE 1: slightly significant impact, on a temporary, short-term basis*
  - *ALTERNATIVE 2: insignificant impact, on a temporary, short-term basis*
26. Relocation of other infrastructure features
  - *ALTERNATIVE 1: insignificant impact*
  - *ALTERNATIVE 2: slightly significant impact*
27. Impact on the Čečejevce – Seleška field airport operation
  - *ALTERNATIVE 1: slightly significant impact*
  - *ALTERNATIVE 2: significant impact*
28. Development of local services throughout the time of construction
  - *insignificant positive impact, on a temporary, medium-term basis*
29. Impacts on tourist localities throughout the time of construction
  - *no impact*
30. Temporary felling within LPF
  - *ALTERNATIVE 1: no impact*
  - *ALTERNATIVE 2: slightly significant impact, on a temporary, medium-term basis*
31. Permanent felling in the new protective zone of the power line
  - *ALTERNATIVE 1: no impact*
  - *ALTERNATIVE 2: significant impact, on a long-term basis*
32. Substitute seeding in the new line's protected zone
  - *ALTERNATIVE 1: no impact*
  - *ALTERNATIVE 2: slightly significant positive impact, on a long-term basis*
33. Processing of raw wood after deforestation
  - *ALTERNATIVE 1: no impact*
  - *ALTERNATIVE 2: slightly significant positive impact*
34. Compliance with the governing ÚPD<sub>[Land use plan]</sub> of VÚC<sub>[macroregion]</sub>
  - *ALTERNATIVE 1: insignificant impact*
  - *ALTERNATIVE 2: slightly significant impact*
35. Compliance with ÚPD of affected municipalities
  - *insignificant impact*

## 8. SELECTED ALTERNATIVE

To select the alternative we have classified the assessed impacts in the common groups and in relation to these impacts, as well as the groups, we have:

- added in the first step of evaluation their significance values, specifically for each alternative, as follows:

0	no impact		
-1	negligible negative impact	+1	negligible positive impact
-2	slightly significant negative impact	+2	slightly significant positive impact
-3	significant negative impact	+3	significant positive impact
-4	very significant negative impact	+4	very significant positive impact
- added in the second step of evaluation to the separate groups the weight of the significance assessment as follows:

→	impacts on abiotic components of the natural environment	1.00
→	impacts on landscape	1.00
→	impacts on biotopes	3.00
→	impacts on human population	2.00
→	social-and-economic impacts and land utilization impacts	4.00
→	direct impacts	1.00

Weighing values have been selected on the basis of the:

- overall nature of the affected region from the viewpoint of the landscape structure, significance and representation of natural and landscape features;
- population density of the affected region and concentration in respect of the proposed line corridor;
- importance and contribution of the proposed activity from the viewpoint of the future social development; and
- space and capacity requirements of the new construction.

After the first-step evaluation the following interpretation results from partial comparisons of impact groups for separate alternatives (without weighing the impacts):

From the viewpoint of impacts on the abiotic environment, impacts on the landscape, impacts on the population and direct impacts Alternative 0 shows the least unfavourable impacts when compared with Alternative 1 or Alternative 2, almost in case of all individual criteria – impacts. It is due to the temporary impacts caused by the construction on separate components of environmental conditions, as well as conducting the line via Current Landscape Structure components and the effects resulting therefrom, namely, the required felling.

What may be mentioned in favour of Alternative 1 or Alternative 2 in comparison with Alternative 0 is only the possibility of temporary employment of the population throughout the time of construction.

When mutually comparing Alternative 1 with Alternative 2, the less negative impacts result from Alternative 1, which are given by conducting the route of Alternative 2 across the forest complex Žobrák - Dúbrava and the impacts on significant biotopes, ÚSES features and, especially, the scope of felling resulting therefrom.

From the viewpoint of impacts on the biota Alternative 0 shows equal impacts with Alternative 1, which is due to that the rate of impacts on significant biotopes, scope of felling and risk of collision of birds with the new line is compensated by new options of bird nesting and development of shrubbery. Alternative 2 shows in comparison with Alternative 0 and

Alternative 1 more unfavourable impacts resulting once again from routing Alternative 2 across the significant biotope – the forest complex Žobrák - Dúbravy.

From the viewpoint of social-and-economic impacts there are provable significant differences in favour of Alternative 1 and 2 when compared with Alternative 0.

Points favouring Alternative 0:

- permanent and temporary occupations of farming land;
- temporary felling within LPF from the viewpoint of direct impacts and impacts on forestry;
- temporary occupations within PPF from the viewpoint of affecting the farming production;
- forest felling (Alternative 2 only) from the viewpoint of impacts on forestry;
- temporary relocation of the public networks;
- temporary traffic restrictions; and
- impacts on Čečejevce – Seleške field airport.

Points favouring Alternative 1 or 2 when compared with Alternative 0 are, namely, as follows:

- indirect support of industries;
- positive impacts on the development of local services in connection with the construction;
- elimination of the not promising further operation of 2x220kV line until the end of its service life;
- forest reclamation and wood processing (regarding Alternative 2 only)
- facilitates the implementation of the Phase 2 representing the construction of 2x400kV line along the section TR Lemešany - ES Košice within the existing corridor instead of the defective 2x220kV line.

From a mutual comparison of Alternative 1 and Alternative 2 there results almost an equal level of impacts for both the Alternative 1 and 2. Minor differences result from a more extensive scope of the infrastructure relocation and impacts on the field airport operation in case of Alternative 2 and, on the contrary, from a bigger scope of traffic restrictions in case of Alternative 1. The difference is also represented by the existence of both the negative and positive impacts on forestry in case of Alternative 2.

The second-step evaluation of separate alternatives (after weighing the criteria) has emphasized the significance of social-and-economical impacts, as well as impacts on biota and human population. The temporary impacts of construction, which dominated during the first-step evaluation, have been thus put to a more objective comparison level with the overall impacts of the proposed activity.

After weighing the impacts the difference between Alternative 0 and Alternative 1 has been reversed and confirmed a generally more favourable evaluation for Alternative 1. Differences between Alternative 1 and Alternative 2 were highlighted in the second stage of evaluation, namely, because of different level of impacts on the biota, landscape and direct impacts.

When considering the importance of all groups of impacts after weighing, which is given by a sum of significance/s of separate impacts after multiplication by the weighing coefficient, the more **favourable assessment** from the evaluated alternatives is shown by **Alternative 1**.

Implementation of the proposed project, i.e. the construction and operation of new 2x400kV line along the section TR Moldava - ES Košice brings as a publicly beneficial construction significant economic and developmental prospects for Košice industrial complex and thus indirectly for the entire Košice region. Because of the high age and wear of the existing 2x220kV line from TR Lemešany to Košice, which is not capable as such to meet the

quality requirements for power supplies it represents the Phase 1 of an indispensably required investment, namely, establishment of the 400kV connection from TR Lemešany and TR Moldava, terminated in ES Košice, incorporated within ÚPN VÚC of Košice County.

From the viewpoint of routes predominantly conducted in the intensively exploited farming landscape the proposed project, the new line rated 2x400kV in the section TR Moldava - ES Košice, does not bring forward any generally significant, negative environmental impacts. The resulting negative impacts are mostly distinguished by their local nature, with various significance values. Most of them are reversible and may be mitigated by means of the proposed environmental measures.

When comparing the proposed alternatives (i.e. Alternative 0, Alternative 1, Alternative 2) and while considering the technical, economic and, especially, environmental specificity, the generally most convenient alternative is Alternative 1, i.e. the implementation of the scheduled project.

The most important circumstances resulting from preference of the proposed Alternative 1 are as follows:

- inevitability of the implementation of the proposed project, which will enable the execution of the Phase 2 (construction of the 2x400kV line in section TR Lemešany - Košice) within the existing 2x220kV line corridor without any necessity to maintain the supply of the industrial complex throughout the time of the construction (e.g. by means of the temporary parallel reconnection throughout the time of construction outside the existing corridor), thus by means of dismantling the old 2x220kV line and subsequent construction of the new 2x400kV line in the freed corridor, resulting in the desired 400kV reconnection of TR Lemešany - ES Košice - TR Moldava;
- compliance with the existing ÚPN VÚC of the local government of Košice County;
- minimization of impacts on the biota, namely, felling and routes conducted across significant biotopes;
- elimination of impacts on the forest complex Žobrák – Dúbrava due to that Alternative 1 circumvents it; and
- developed environmental measures for the implementation of the proposed project, highlighting further environmental impacts on the project, based on pro-active co-operation of all the experts during the following preparation of tasks in separate steps of the permission procedure.

## **9. TRANSBOUNDARY IMPACTS**

The proposed activity, namely, the power transmission line rated 2×400kV Lemešany - Moldava (Phase 1: TR Moldava - ES Košice) will not cause any transboundary impacts or affect the countries neighbouring with the Slovak Republic.

## 10. MITIGATION OF NEGATIVE IMPACTS

The mitigation measures shall be incorporated after their adoption in the decision making process and become part of the other steps taken up within the licensing activity in accordance with the Building Act.

### Technical measures - selection

#### Measures in a period of preparation

1. Prior to felling of non-forest tree and bush vegetation (both alternatives) and forest tree vegetation (Alternative 2 only) the route survey from the viewpoint of possible occurrence of nesting birds will take place.
2. Suitability of the foundation soils or mineral environment for each of the pylon sites will be verified by means of a detailed engineering-and-geological survey.

#### Measures throughout the time of construction

##### *Universal measures for the whole construction*

3. Movement of construction mechanism will take place exclusively on the access roads specified in advance. On a priority basis the existing forest (Alternative 2 only) and field (dirt) roads will be utilized the existence of which has been verified by means of the field survey. Construction of new roads is only allowed inside the corridor of the line protective zone.
4. All and any felling shall take place during the non-vegetation period (from October to February), in accordance with the applicable laws and regulations.

##### *Particular measures for the significant impacts or specific sections of the line*

##### PPF protection

5. Foundations of pylons on the sites with occurrence of non-forest vegetation are not desirable.
6. Felling on PPF will be minimized - with only high-growing woody plants being removed, and low-growing woody plants left, and/or removed to the inevitable extent during pulling the cables only.
7. Promptly after completion of the construction in separate sections the technical and biological rehabilitation of PPF will take place, to be implemented in addition to the current agronomic operation, and the substitute planting will be applied according to the project developed and approved in advance.
8. In the areas with a high erosion risk a temporary panel-type supporting bed of access roads will be used.

##### LPF protection (Alternative 2 only)

9. After termination of the construction in separate section the technical and biological rehabilitation of LPF will take place and the substitute forest plantation will be applied according to the project developed and approved in advance. Treatment of planted seeds will proceed over the minimum period of five year. Upon the generic composition of the substitute plantation the original generic composition of the growth will be considered.

#### Protection of water streams

10. We do not recommend passage of construction mechanisms across water streams by fording. In the spots of crossing any water stream temporary bridge constructions will be made or panel blocks will be laid down.
11. Pylon sites will be positioned as far as possible from water streams.
12. Felling riverside vegetation within the protective zone will be minimized to the highest woody plants only, and/or the inevitable width required to pull the cables..

#### Protection of fauna

13. In order to avoid possible contacts of birds with electric wires the cables, and/or barriers will be made visible in the selected sections, and/or other places to be recommended by the appropriate departments of the State Nature Protection of the Slovak Republic (“ŠOP SR”).
14. Restrict to the maximum possible extent the construction work distinguished by intensively disturbing impacts in continuous forest complex (Žobrák - Dúbrava) during spring season of reproduction and rearing the young ones of forest animals.
15. After the excavation works, during the founding operations connected with tower feet, provide the rehabilitation-based collection of possible amphibians appearing in the created foundations, as well as other possible dug up holes still prior to their concreting .
16. Within the efforts made to precede the inconvenient establishment of nests on the line towers and after and as agreed with the state agency for protection of nature install on selected towers nesting boxes.

#### Protection of significant biotopes

17. During the operations, handling and building of accesses, including inevitable bridging across access roads in alluvial plains of water streams, any interference with the riverside vegetation will be eliminated, and/or restricted to the maximum extent.
18. In the sections which pass through significant biotopes the handling operations of conductors during pulling cables over the ground shall be minimized.
19. Movement of building machinery and mechanisms on soaked and waterlogged surfaces is forbidden.
20. Take up all available measures to prevent spread of ruderal and invasive types of plants (by eliminating possible transfer through soil, technical equipment and vehicles and by securing accelerated grassing of disturbed surfaces of meadows and pastures while applying suitable types, by subsequently repeated mowing, etc.)

*Particular measures shall apply to individual localities of significant biotopes*

#### Locality No. 1 (Marsh near Čečejevce)

- eliminate impacts on the fenny biotope;
- maintain the water regime of the locality; and
- design the access routes to towers on the existing roads.

#### Locality No. 2 (Bank growths of Čečejevský stream above Čečejevce)

- minimize the impacts on bank growths;
- minimize the felling of woody plants;
- minimize the impacts on the stream channel; and
- minimize the handling operations when pulling cables.

#### Locality No. 3 (Forest complex Žobrák - Dúbrava) - Alternative 2 only

- design access routes to towers on the existing forest roads;
- provide the corridor survey from the viewpoint of any nesting birds prior to felling;

- implement the felling during the non-vegetation and not nesting seasons;
- secure the thorough rehabilitation measures (reclamation and substitute seeding);
- secure a very sensitive approach and a good organization and coordination of works for the purpose of optimization of movement of machines and performance of separate tasks to mitigate impacts from the viewpoint of both the timing and spatial effects.

### Technological measures

21. Minimization of felling
22. Minimization of impacts on the landscape scenery
23. Incorporation of results of the specialist study to eliminate effects resulting from electromagnetic radiation in respect of the population

Reflection of the measures in question in the subsequent design preparation shall take place by means of updating the “longitudinal profile” of the proposed line, forming part of the design documentation for the planning decision. It shall consider the selection of the relevant Alternative, the specified tower sites, as well as the heights of individual towers.

One has to recognize that meeting all and any requirements in full is not feasible, as they mutually affect one another. The main limits – inputs for compliance with the above measures are the following facts:

- the line operation requires to maintain the protective zone (“OP”), which means felling of grown up woody plants within OP on a regular basis in accordance with the requirements set forth by the Act No. 656/2004 and STN EN 50 341 - 1 Standard Specifications; no vegetation with a height of more than 3 meters is allowed to be grown inside the protective zone, however, the vegetation up to such height assuring that when falling down it cannot touch the line wires is allowed to be grown from a distance of 5 meters from the end wire (thus 20 meters inward OP);
- minimum height of the tower, given the technologic design in question (type DONAU) is 37.1 meters and represents the single possibility of minimization of the impact on the landscape scenery. There may be used also towers increased by 2, 4, 8 and 12 meters, respectively, with the similar extension of the cable positions;
- maximum possible span between a couple of towers is approx. 400 meters; and
- the plain ground is a significantly limiting factor to locate the tower sites in consequence of which the problem-free location of towers is excluded from significant biotopes, as well as the other crossed line features of the landscape.

At the given stage of development of the construction there are already the conditions which will be applied in connection with the longitudinal profile modification:

- a) according to the results of the professional study „Evaluation of the level of electric and magnetic fields of TR Moldava - ES Košice 2x400kV line“ from the viewpoint of impacts on the health of the population an elevation of towers by maximum 2 meters shall be applied in the selected spans of towers, so that to assure compliance with the above hygienic requirements;
- b) when crossing significant non-forest biotopes (Čečejevský stream), line type non-forest vegetation (small groves, wind breakers, terrain undulations covered with vegetation), as well as single woody plants in the farming landscape, the required felling shall be minimized only to the necessary width of felling so that the preserved grown up woody plants cannot endanger by their falling down the wires of the new line;
- c) in the remaining sections of the proposed line the basic height of towers as the minimization of impact on the landscape scenery shall be utilized.

## Organizational and operational measures

24. When operating all the vehicles and other technical facilities used in the field during the line inspection, maintenance and possible reconstruction, a regular control and maintenance of their technical condition must be ensured so that to eliminate leakage of oil products and other hazardous substances to the soil and water and thus even the risk of indirect impact on the vegetation cover.
25. Support of regular management, i.e. the suitable type of felling, cutting on possibly selected surfaces of significant non-forest biotopes in the protective zone of new line (e.g. locality No.1 – Marsh near Čečejevce) for the purpose of elimination of invasive woody plants.
26. As a compensation for the destruction and permanent damage of significant biotopes (i.e. the forest complex Žobrák - Dúbravy in the event of implementation of Alternative 2) take up in collaboration with ŠOP SR the rehabilitation measures in the biotope in question, and/or on substitute surfaces; we recommend to utilize all the available methods of rehabilitation, depending on the scope of damage and requirements raised by ŠOP SR.

## Other measures

27. Substitute seeding of woody plants to replace felling of non-forest woody vegetation on the forest farming fund (“LPF”).
28. Compensations for damages caused to the land farming fund (“PPF”).
29. Substitute seeding of woody plants in LPF and subsequent care taken thereof according to the approved project.
30. Compensations for damages caused by driving of building machinery and mechanisms across affected settlements.
31. Compensations for permanent occupation of PPF.
32. Compensations for permanent occupation of LPF.
33. Compensations for restricted utilization of the land within the protective zone of new line.
34. Routine compliance with applicable technical, technological, organizational and safety regulations connected with the construction and operation of the proposed type of activity.
35. Proper disposal of wastes throughout the term of the construction in conformance with the agreed conditions in accordance with the building permit. All the contractor’s and subcontractors’ personnel must be thoroughly informed of the waste disposal. .

## 11. MONITORING PROGRAMME

**In the event of the implementation of Alternative 1** no special regular and long-term monitoring of individual selected components of environmental conditions is to be established and performed. The proposed measures should become a logical part of the subsequent licensing process and should be reflected unchanged in the conditions of the issued planning decision, building permit, and/or the certificate of practical completion. The actual implementation and operation of the environmental measures should be checked by the licensing agency prior to the certificate of practical completion, at the latest, and should be made the condition since qua non-of its issuance.

**In the event of the implementation of Alternative 2** the special regular and long-term monitoring of individual selected components of environmental conditions is **to be established and performed**. Based on the current information regarding the terrain in

question, experiences obtained from similar projects in the past, general nature and state of preparation of the proposed activity we are able to conclude in connection with the monitoring process under preparation as follows:

- Based on the identified impacts, expected magnitude of their operation and significance, as well as the proposed mitigating measures we suggest monitoring of the following environmental components: **biotopes - forest vegetation.**
- As the only monitoring surface for following up forest vegetation seems to be the significant biotope No. 3 – forest complex Žobrák - Dúbravy
- Monitoring activities must be started as a minimum two years before the scheduled beginning of construction work with the objective to document the current condition of monitoring surfaces as a comparison base.
- Over the time of construction the monitoring will be concentrated mainly on the control of compliance with the environmental measures suggested for the construction stage and their proper implementation (most of the environmental measures), and/or coping with unforeseeable and newly discovered circumstances by means of operative measures.
- After completion of the construction - in the third stage of monitoring (over the time of operation) the monitoring activities will be focused on:
  - evaluation of actual impacts of the construction in comparison with the expected ones;
  - evaluation of the success rate of implemented environmental measures;
  - possible amendments or proposals of new measures;
  - management of the proposed revitalization measures.
- Monitoring in the stage of operation should proceed up to the time of establishment of the new, definite or desired quality on individual monitored surfaces, and/or in respect of the definitely confirmed development trend.
- Progress and results of the monitoring activities will be recorded in the documentation consisting of the following:
  - implementation of the monitoring project;
  - partial final reports for separate years; and
  - final report.