

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT
ON INVESTMENT PROPOSAL
FOR**

**“CONSTRUCTION OF A NEW 400 KV POWER LINE FROM SUBSTATION
“PLOVDIV” 400 KV TO SUBSTATION “BURGAS” 400 KV WITH A BREAK IN
SUBSTATION “MARITSA EAST” 400 KV, AND A NEW POWER LINE FROM
SUBSTATION “MARITSA EAST” 400 KV TO THE SWITCHYARD OF TPP
“MARITSA EAST 3”**

Non-Technical Summary

(in compliance with the Environmental Protection Act, amended SG 62 of 14 August 2015 and the Ordinance on the conditions and procedures for environmental impact assessment, amended SG 94 of 30 November 2012)



Employer: Elektroenergien Sistemen Operator EAD

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1. Annotation of the investment proposal for the construction, activities and technologies

The investment proposal is for construction of a new overhead transmission line (OHTL) 400 kV from s/s "Plovdiv" 400 kV to s/s "Burgas" 400 kV with a break in s/s "Maritsa East" 400 kV, and a new overhead transmission line from s/s "Maritsa East" 400 kV to the switchyard of TPP "Maritsa East 3".

The project is identified as a project of national importance with Decision No. 771 of the Council of Ministers (Bulgaria) dated 21 October 2011.

The chosen route for the new OHTL is divided into three sections:

- Section 1 **from s/s "Plovdiv South" up to s/s "Maritsa East"**;
- Section 2 **from s/s "Maritsa East" 400 kV to s/s "Maritsa East 3"**;
- Section 3 **from s/s "Maritsa East" 400 kV to s/s "Burgas"**.

In the stage of feasibility study several options and sub-options of the route were examined, some of which dropped out at the design process. ESO EAD has considered the following alternative options by sections:

- **Section 1** - Option I and Option II ;
- **Section 2** - Option I and Option II;
- **Section 3** - Option I and Option III.

The EIA Report shall analyse the route Options and shall assess the impact on the environment as a result of the implementation and operation of the investment proposal. The Report will also analyze the impact on the social environment in accordance with the rules of the European Bank for Reconstruction and Development – administrator of the financing from the Kozloduy International Decommissioning Support Fund for the construction of a new 400 kV power line between s/s "Plovdiv" 400 kV and s/s "Maritsa East" 400 kV.

The proposed route would require the acquisition of land in favor of S D, which will cost additional funds, but there will be no resettlement of the affected population.

During operational period additional land acquisition will not be required. When designing the route, it was attempted as many as possible low-productive and none-productive lands and as few as possible sensitive and protected territories and areas to be affected. The procedure for the establishment of rights over land shall begin after the alteration of the designation of the agricultural land and the approval of the Detailed Development Plan by the Ministry of Regional Development.

According to the *Energy Act (as published in the State Gazette No. 107 of 9 December 2003, amended and supplemented with No. 17 of 6 March 2015)* the right for construction of the power line foundations is granted against payment and for an unlimited period of time. For ESO EAD, this will be land acquired for an unlimited period. The owners of the lands affected by the tower foundations shall be personally informed about the investment proposal. If the owners agree, a contract is signed for the establishment of rights for construction in that part of the property where the tower foundation will be settled. In case of disagreement, the corresponding property will be expropriated with a decision of the Ministry of Regional Development, in accordance with the *State Property Act (promulgated in the State Gazette*

No. 44 of 21 May 1996, amended and supplemented in SG No. 105 of 19 December 2014). The temporary use of land concerns the implementation of the construction works and the movement of construction equipment in the easement zone. The owners of lands in the area will be compensated in accordance with the grown and harvested crops there, which they will not be able to use for the corresponding period of time. The conditions for compensation for land use (temporary and permanent) are defined in the Regulation for implementation of *Ownership and Use of Agricultural Land Act* (as published in State Gazette No. 17 of 1 March 1991, amended with No. 31 from 28 April 2015). If some of the owners do not agree with the assigned compensation, further discussion on the amount of the benefits will be held. The amount of compensation regarding easements is determined according to the *Spatial Development Act*, the *Energy Act* or by mutual agreement between the parties based on an assessment by a licensed assessor.

1.1 Location

The route of the new OHTL 400kV passes mainly through cultivated and uncultivated agricultural areas.

The affected areas belong to the the following settlements:

Section 1, Option II (chosen) – passes through the territories of three districts - Plovdiv, Haskovo and Stara Zagora. Affected municipalities and land territories are as follows:

Plovdiv District: Rodopi Municipality - Brestnik village, Krumovo village, Yagodovo village; Sadovo Municipality – Katunitsa village, Karadhovo village, Bolyartsi village, Bogdanitza village; Asenovgrad Municipality - Izbeglii village, Konush village; Parvomay Municipality - Tatarevo village, town of Parvomay, Byala reka village, Karadzhhalovo village.

Haskovo District: Dimitrovgrad Municipality – Varbitsa village, Skobelevo village, Stalevo village, Yabalkovo village, town of Dimitrovgrad, Bryast village, Radievo village, Golyamo Asenovo village, Malko Asenovo village; Simeonovgrad Municipality - Pyasachevo village.

Stara Zagora District: Opan Municipality - Bashtino village, Stoletovo village, Vasil Levski village; Galabovo Municipality - Musachevo village, town of Galabovo.

Section 1, Option I (alternative) – passes through the territories of three districts - Plovdiv, Haskovo and Stara Zagora. Affected municipalities and land territories are as follows:

Plovdiv District: Rodopi Municipality - Brestnik village, Krumovo village, Yagodovo village; Sadovo Municipality – Katunitsa village, Karadhovo village, Bolyartsi village, Bogdanitza village, Ahmatovo village; Asenovgrad Municipality - Izbeglii village, Konush village; Parvomay Municipality - Tatarevo village, Vinitza village, town of Parvomay, Gradina village, Krushevo village, Ljubenovo village, Dobri Dol village, Karadzhhalovo village.

Haskovo District: Dimitrovgrad Municipality – Varbitsa village, Merichleri, Dlagnevo village, Zdravets village, Bryast village, Golyamo Asenovo village, Malko Asenovo village; Simeonovgrad Municipality - Pyasachevo village.

Stara Zagora District: Chirpan Municipality - Zetyovo village, Tselina village, Zlatna livada village; Opan Municipality – Byalo pole village, Stoletovo village, Vasil Levski village; Galabovo Municipality - Musachevo village, town of Galabovo, qu. Mityo Stanev.

Section 2, Option I (chosen) – passes through the territories of two districts – Haskovo and Stara Zagora. Affected municipalities and land territories are as follows:

Haskovo District: Simeonovgrad Municipality - Pyasachevo village.

Stara Zagora District: Galabovo Municipality – town of Galabovo, Navasen village, Obruchishte village, Mednikarovo village.

Section 2, Option II (alternative) – passes through the territories of two districts – Haskovo and Stara Zagora. Affected municipalities and land territories are as follows:

Haskovo District: Simeonovgrad Municipality - Pyasachevo village.

Stara Zagora District: Galabovo Municipality – town of Galabovo, Obruchishte village, Mednikarovo village.

Section 3 Option I (chosen) – passes through the territories of four districts – Stara Zagora, Haskovo, Yambol and Burgas. Affected municipalities and land territories are as follows:

Stara Zagora District: Galabovo Municipality - Mednikarovo village, Iskritsa village, Glavan village, Madrets village.

Haskovo District: Topolovgrad Municipality - Vladimirovo village, Orlov dol village, Svetlina village, Kamenna reka village.

Yambol District: Tundzha Municipality - General Toshevo village, Golyam manastir village, Drama village, Malomir village, Tenevo village, Karavelovo village, Asenovo village; Elhovo Municipality - Malak Manastir village; Straldja Municipality - Saransko village, Tamarino village, Voynika village, Lyulin village, Parvenets village, Nedyalsko village, Bogorovo village.

Burgas District: Karnobat Municipality - Dobrinovo village, Zhitosvyat village, Cherkovo village, Ekzarh Antimovo village, Krushovo village, Asparuhovo village; Kameno Municipality – Troyanovo village, Krastina village, Vinarsko village; Burgas Municipality - town of Balgarovo.

Section 3 Option III (alternative) – passes through the territories of four districts – Stara Zagora, Haskovo, Yambol and Burgas. Affected municipalities and land territories are as follows:

Stara Zagora District: Galabovo Municipality - Mednikarovo village, Iskritsa village, Glavan village, Madrets village.

Haskovo District: Topolovgrad Municipality - Vladimirovo village, Orlov dol village, Svetlina village, Kamenna reka village.

Yambol District: Tundzha Municipality - Golyam manastir village; Elhovo Municipality - Malak Manastir village, Pchela village, Trankovo village, Kirilovo village, Jrebino village; Bolyarovo Municipality - Kamen vruch village, Dennitsa village; Straldja Municipality - Polyana village, Alexandrovo village.

Burgas District: Sredets Municipality -. Kubadin village, Bistrets village, Draka village, Zagortsi village; Kameno Municipality – Zhelyazovo village, Troyanovo village, Krastina village, Vinarsko village; Burgas Municipality - town of Balgarovo.

The exact locations, the shape and size of every foundation for the towers and the power line easement meet the requirements of *No. 16 / 09.06.2004 on the easements of energy facilities.*

During the implementation of the route of the new 400 kV OHTL will be installed the following number of towers:

Section 1:

- Option II – 262;
- Option I – 279;

Section 2:

- Option Ia – 59;
- Option II – 62;

Section 3:

- Option III – 452;
- Option I – 461;

The land under the OHTL will not be used for residential buildings and construction works will not be carried out on them. Agricultural activities in the easement zones will be allowed, except planting long-lived trees with a height of over four meters. Ownership of these lands will not be changed. In the course of exercising the easement rights the owner of those rights receives the right: to construct the OHTL; its representatives to enter and pass through the easement areas and carry out any activities to them in relation to the construction and / or operation of energy facilities, including the right of transit of equipment through the easement properties in relation with the construction and maintenance of power lines and surface facilities; to carry out pruning and cutting of trees in the easement corridors of the power lines and the hydro-engineering constructions in order to prevent accidents, by informing the competent authorities for forest management and national parks. The change of ownership of the property does not affect the validity of the easement in terms of the dominant and the burdened areas with easement. The easements are indivisible rights which may be exercised entirely in favour of each part of the dominant area and entirely borne by each part of the burdened with easement area. Easements can be used only for the needs of the dominant property. The owner of the property burdened by the easement is not entitled to “redirect” the easement. Easement rights arise when there is an accepted Detailed Development Plan, indicating the location of the respective properties, and the holder of the easement right has paid a one-time compensation to the owner of the property on which the easement rights have been granted and to the holders of any other rights on the property. The easement right is exercised by the holder of the easement in accordance with the technical requirements of *Ordinance No. 16 / 09.06.2004 on the easements of energy facilities*.

The size and location of the easement zones are in accordance with *Ordinance No. 16 / 09.06.2004 on the easements of energy facilities*.

In the vicinity the proposed routes there are not subject to health protection.

It is envisaged all areas, provided for temporary use during the construction of the OHTL, to be released and restored by the completion of the project. It is not necessary to acquire additional land for storage or accumulation of building materials.

Location against protected sites:

The project route crosses areas of "Natura 2000", due to technical impossibility of avoiding. These areas are presented below by sections and Options:

Section 1, Option II crosses the following protected areas:

- Protected area Chaya River, Code BG0000194, declared under the Habitats Directive;

- Protected area Cherkezitsa River, Code BG0000437, declared under the Habitats Directive;
- Protected area Konush Reservoir, Code BG0002015, declared under the Birds Directive;
- Protected area Mechka River, Code BG0000436, declared under the Habitats Directive;
- Protected area Kayaliyka River, Code BG0000435, declared under the Habitats Directive;
- Protected area Maritsa River, Code BG0000578, declared under the Habitats Directive;
- Protected area Merichlerska River, Code BG0000287, declared under the Habitats Directive;
- Protected area Martinka River, Code BG0000442, declared under the Habitats Directive.

Section 1, Option I crosses the following protected areas:

- Protected area Chaya River, Code BG0000194, declared under the Habitats Directive;
- Protected area Cherkezitsa River, Code BG0000437, declared under the Habitats Directive;
- Protected area Konush Reservoir, Code BG0002015, declared under the Birds Directive;
- Protected area Mechka River, Code BG0000436, declared under the Habitats Directive;
- Protected area Maritsa-Parvomai, Code BG0002081, declared under the Birds Directive;
- Protected area Maritsa River, Code BG0000578, declared under the Habitats Directive;
- Protected area Merichlerska River, Code BG0000287, declared under the Habitats Directive;
- Protected area Martinka River, Code BG0000442, declared under the Habitats Directive.

Main differences between the alternatives of Section 1:

The alternative Option I crosses Protected area Maritsa-Parvomai, Code BG0002081 in the section between fixed benchmark R7 and R11. The section of the route within the protected area is about 16,600 m.

Option II does not affect Protected area Maritsa-Parvomai.

The alternative Option I crosses Protected area Maritsa River, Code BG0000578 at six places:

- in a section with a length of about 500 meters between fixed benchmark R8 and R9;
- between fixed benchmark R9 and R10 - at four places with a total length of 1100 meters;
- in a section with a length of about 1200 meters between fixed benchmark R10 and R11;

The route of alternative Option I affects totally about 2800 m of Protected area Maritsa River. In comparison Option II crosses once Protected area Maritsa River in a section between fixed benchmark R12 and R13 with length of 510 m.

In Appendix 8.2 is given a map of SAC Maritsa-Parvomai and SAC Maritsa River showing the Options for the route of Section 1.

With regard to the other protected sites there is no significant difference between the two Options for the route of Section 1.

Section 2 crosses the following protected sites in both considered Options:

- Protected area Sazliika River, Code BG0000425, declared under the Habitats Directive;
- Protected area Rozov kladenets Reservoir, Code BG0002022, declared under the Birds Directive;
- Protected area Sokolitsa River, Code BG0000440, declared under the Habitats Directive.

In respect of protected sites there is no significant difference between both Options for the route of Section 2.

Section 3, Option III crosses the following protected areas:

- Protected area Sokolitsa River, Code BG0000440, declared under the Habitats Directive;

- Protected area Sakar, Code BG0000212, declared under the Habitats Directive;
- Protected area Tundzha River 2, Code BG0000195, declared under the Habitats Directive.

The route is in proximity, but does not cross the following protected areas:

- Protected area Sakar, Code BG0002021, declared under the Birds Directive - the shortest distance between the route and the border of the site is 150 meters, the route is north of the site;
- Protected area Zapadna Strandzha, Code BG0002066, declared under the Birds Directive - the shortest distance between the route and the border of the site is 14930 m, the route is north-west of the site;
- Protected area Atanasovsko ezero, Code BG0000270, declared under the Birds Directive - the shortest distance between the route and the border of the site is 2970 m (end of the route), the route is west of the site.

Section 3, Option I crosses the following protected sites:

- Protected area Sokolitsa River, Code BG0000440, declared under the Habitats Directive;
- Protected area Sakar, Code BG0000212, declared under the Habitats Directive;
- Protected area Tundzha River 2, Code BG0000195, declared under the Habitats Directive;
- Protected area Sredetska River, Code BG0000198, declared under the Habitats Directive;
- Protected area Sakar, Code BG0002021, declared under the Birds Directive

The route is in proximity, but does not cross the following protected areas:

- Protected area Zapadna Strandzha, Code BG0002066, declared under the Birds Directive - the shortest distance between the route and the border of the site is 1500 m, the route is north-west of the area;
- Protected area Atanasovsko ezero, Code BG0000270, declared under the Birds Directive - the shortest distance between the route and the border of the protected area is 2970 m (end of the route), the route is west of the area.

1.2. Characteristics of the investment proposal

The new OHTL 400kV will be constructed from s/s „Plovdiv” 400kV to s/s Burgas 400kV with a break in s/s „Maritsa Iztok” 400kV and to TPP „Maritsa Iztok 3”.

The entire route is planned to include three sections:

- Section 1 **from s/s "Plovdiv South" up to s/s "Maritsa Iztok";**
- Section 2 **from s/s "Maritsa Iztok" 400 kV to s/s "Maritsa Iztok 3";**
- Section 3 **from s/s "Maritsa Iztok" 400 kV to s/s "Burgas".**

The predominant areas along the power line are agricultural lands. The designation of the agricultural land will be changed before the implementation of the investment proposal. The foundations of the towers will be located primarily on a layer of sand, gravel sand or gravel of various sizes.

The implementation of landscaping will begin after the completion of the construction work and cleaning of the field. The pavements will be placed around the tower foundations after completing the landscaping.

1.3. Characteristics of the territory - type and way of land use

Affected areas by the route of the power line are categorized by types of land with percentage distribution presented in table form for sections and implementation of the route as follows:

- For Section 1 Option IIa the majority of the affected areas by type is agricultural land (96.88%), and by type of ownership - private land (71.04%).
- For Section 1 Option I the majority of the affected areas by type is also agricultural land (91%), and by type of ownership - private land (72%).
- For Section 2 Option Ia the majority of the affected areas by type is agricultural land (87.48%), and by type of ownership - private land (60.76%).
- For Section 2 Option II the majority of the affected areas by type is agricultural land (86%), and by type of ownership - private land (48%).
- For Section 3 Option III the majority of the affected areas by type is agricultural land (90.09%), and by type of ownership - private land (56.37%).
- For Section 3 Option I the majority of the affected areas by type is agricultural land (83.4%), and by type of ownership - private land (54.8%).

The designation of the agricultural land (through which the OHTL passes) will be changed prior to the implementation of the investment proposal. The foundations for the towers will be situated mainly on a layer of sand, gravel sand or gravel of various sizes.

A single stage construction and commissioning of the new OHTL 400 kV is envisaged.

2. Investigated by the Employer alternatives for location (with sketches and coordinates of typical points in the established coordinate system of the country) and / or technology alternatives and the reasons for the choice of the study, given the impact on the environment, including the "zero" alternative

At the stage of the feasibility study, many options and sub-options of the route were considered, some of which were eliminated in the process of design. ESO EAD has considered the following options by sections:

Section 1- Option I and Option II ;

Section 2- Option I and Option II;

Section 3- Option I and Option III;

The project for construction of the new OHTL envisages connection of two points: s/s Plovdiv and s/s Burgas. The proposed routes comply with the characteristics of the project, while being achievable at the locations, through which the line passes, and in the same time avoiding health protected sites such as residential buildings, hospitals, schools, kindergartens, nurseries, universities, playgrounds, shelters for temporary accommodation, recreation and entertainment places, food factories, sanitary protection zones.

Alternatives for location

It is envisaged the route to pass mainly through arable and non-arable land.

The route of the 400 kV OHTL consists of three sections, for each of the sections two options are examined.

Affected areas under the considered options are as following:

- **Section 1, Option** – passes through the territory of the following municipalities: Rodopi, Sadovo, Asenovgrad, Parvomay (Plovdiv District), Chirpan (Stara Zagora District), Dimitrovgrad (Haskovo District) Opan, Galabovo (Stara Zagora District) and Simeonovgrad (Haskovo District);

- **Section 1, Option I (Chosen Option)** – passes through the territory of the following municipalities: Rodopi, Sadovo, Asenovgrad, Pyrvomaj (Plovdiv District), Dimitrovgrad (Haskovo District) Opan, Galabovo (Stara Zagora District) and Simeonovgrad (Haskovo District);

Option I is selected for several reasons: close to existing OHTLs, the shortest length of the route, the smallest losses of electricity and the smallest number of towers for construction.

- **Section 2, Option I (Chosen Option)**– passes through the territory of the following municipalities: Simeonovgrad (Haskovo District) and Galabovo (Stara Zagora District)

Section 2, Option I – passes through the territory of the following municipalities: Simeonovgrad (Haskovo District) and Galabovo (Stara Zagora District);

Option I is selected for several reasons: the shortest length of the route, well-developed road infrastructure along the route, the smallest losses of electricity and the smallest number of towers for construction.

Section 3, Option I – passes through the territory of the following municipalities: Galabovo (Stara Zagora District), Topolovgrad (Haskovo District), Tundzha, Elhovo, Bolyarovo, Straldja (Yambol District), Sredets, Kameno and Burgas (Bourgas District);

Section 3, Option I (Chosen Option)– passes through the territory of the following municipalities: Galabovo (Stara Zagora District), Topolovgrad (Haskovo District), Tundzha, Elhovo, Straldja (Yambol District), Karnobat, Kameno and Burgas (Bourgas District).

Option I is selected for several reasons: the shortest length of the route, well-developed road infrastructure along the route, the smallest losses of electricity and the smallest number of towers for construction.

„Zero alternative“

“Zero alternative” means a refusal to construct the OHTL 400 kV from s/s "Plovdiv" 400 kV to s/s "Burgas" 400 kV with a break in s/s "Maritsa Iztok" 400 kV and TPP "Maritsa Iztok 3", which will mean no negative effects on the environment and the social environment, as there will be no construction or operation of a 400 kV OHTL. It also would mean hampering the supply of electricity to a large consumer such as the town of Burgas and the region.

The refusal of the construction of the power line will eliminate the opportunity for stabilisation of the electricity supply to consumers in the region and the country.

The better alternative in terms of socio-economic conditions in the the region is the realization of the investment proposal.

3. Description and analysis of the environmental components and factors, and the material and cultural heritage that will be significantly affected by the investment proposal, and the connection between them

3.1. Atmospheric air

3.1.2. Sources of pollution and assessment of air quality

The main indicators characterizing the air quality in the ground layer are suspended particles, fine particulate matter, sulfur dioxide, nitrogen dioxide and / or nitrogen oxides, carbon monoxide, ozone, lead (aerosol), benzene, polycyclic aromatic hydrocarbons, heavy metals -

cadmium, nickel and mercury, arsenic. Ambient air quality is controlled by the respective Regional Inspectorates of Environment and Water (RIEW) and is monitored by monitoring points, which are part of the National System for Environmental Monitoring (NSEM)

The chosen route of the OHTL passes through the municipalities Sadovo, Opan, Tundzha, Simeonovgrad, Asenovgrad, Elhovo, Straldzha, Karnobat and Burgas Rodopi besides massive use of solid fuels by the population during the heating season there are no other significant sources of pollution.

In the area of Parvomay are carried out immission measurements with an automatic mobile station to Regional Laboratory Plovdiv. Excessive concentrations of the indicator fine particulate emissions (PM₁₀) are registered during the winter season while all other indicators are below the established norms. The intense traffic on the road E 80 (passing through Parvomay Municipality), the heavy goods vehicles from and to Turkey are the main reasons for the raise in the concentration of PM₁₀, nitrogen oxides, sulfur oxides, CO and CO₂ in the area.

Dimitrovgrad municipality falls in the south-east area for assessment and management of air quality. Air quality along the OHTL is worsened mainly from the pollution from large combustion plants in the energy complex "Maritsa Iztok".

A permanently operating station within the local system for monitoring and control in the municipality of Galabovo is Automatic measuring station "Galabovo". An annual assessment of the levels of PM₁₀, sulfur dioxide, nitrogen oxides, ammonia, ozone and other indicators is conducted. The Automatic measuring station "Galabovo" has registered excessive concentrations of PM₁₀ and sulfur dioxide.

The highest concentrations of pollution are registered during winter months, indicating that the main cause of air pollution with dust and SO₂ is the use of coal from the population for heating and large combustion plants of: TPP „AIS-3 Maritsa Iztok 1” AD, town of Galabovo; „Brikel” D, town of Galabovo; TPP “Maritsa Iztok 2” D, Kovachevo village and „Contur Global Maritsa Iztok 3” D, town of Galabovo.

As permanent sources of impact on the air quality in Topolovgrad Municipality, are transport, household heating, industrial plants and the large combustion plants in the energy complex "Maritsa Iztok".

In Kameno Municipality are registered excessive concentrations of PM₁₀ only in the area of the municipal center – town of Kameno, which is 2 km away from the new OHTL, as the main sources of emissions are transport and domestic heating, and the nearby industrial plants (*including "Lukoil Neftochim Bourgas" AD "Lukoil Energy Gas" LTD and "Burgas sugar factory" Svoboda village*);

Along the alternative route of the OHTL, which passes through municipalities Rodopi, Sadovo, Asenovgrad, Parvomay; Dimitrovgrad, Simeonovgrad and Topolovgrad, Chirpan, Opan and Galabovo, Tundzha, Elhovo, Bolyarovo, Straldja, Sredets, Burgas and Kameno, besides the massive use of solid fuels by the population during the heating season there are no other significant source of pollution.

On the territory of Chirpan Municipality there are no permanent monitoring stations of the national environmental monitoring system, which is an evidence of the lack of significant atmospheric pollution.

On the territory of Chirpan Municipality are no significant local emissions of air pollutants.

On the territory of Elhovo municipality no systematic observations on the atmospheric air quality and no laboratory analysis of the level of the background pollution have been conducted. Permanent sources of air emissions on the municipality territory are, as in all areas, road transport and combustion plants for technological needs and heating.

There are not any significant pollution sources in Bolyarovo Municipality.

Survey results show that the main sources of air pollution in Sredets Municipality are the combustion installations in the utility sector, the road transport and the industry. During the winter heating season air pollution is mainly from the households (for heating homes and administrative buildings) and the transport. During the warm part of the year, the sources of air pollution are the transport (air pollution with carbon monoxide, benzopyrene, non-methane volatile organic compounds and nitrogen oxides), unsupported road and related infrastructure (PM₁₀), construction sites, as well as the occurrences of fires.

Summarized data from Bourgas RIEW shows that Sredets Municipality has considerably good air quality.

Other municipalities through which the alternative route of the OHTL passes are discussed above, as they overlap with the chosen Option.

3.2. Surface and groundwater

3.2.1. Characteristics of the existing condition

Surface water

The new OHTL 400 kV from s/s "Plovdiv" 400 kV to s/s "Burgas" 400 kV with break in s/s "Maritsa Iztok" 400 kV to TPP "Maritsa Iztok 3" falls within the territory of East Aegean River Basin Directorate (EARBD) and Black Sea Basin Directorate (BSBD).

On the territory of the new 400 kV OHTL, no water resources will be impact during the project implementation.

No changes in the regime of watercourses and groundwater are expected , since within the project no water use, corrections of rivers irrigation facilities, etc are planned. The conductors of the 400 kV OHTL will pass above ground along the routes, over gullies and riverbeds, far away from water currents. The implementation and operation of the line will not affect the quantitative regime and quality of groundwater, the overall state of aquatic ecosystems and the processes of self-purification in times of normal and dry years.

Hydrological and hydrogeological conditions and water quality will not be changed by the project and therefore will have no impact on the environmental components.

3.4. Mineral diversity

The scope of the project is transmission of electricity and does not influence deposits of mineral resources. There is no information on found deposits of mineral resources under the towers' foundations along the OHTL.

3.5. Land and soil

According to the soil-geographical zoning of Bulgaria (N. Ninov, Geography of Bulgaria, 1997), the route of the new OHTL 400 kV falls within the Balkan-Apennine soil sub-region, Thracian - Middle Tundzha province.

The route passes through areas mainly occupied by the following soil types:

Section 1- *Fluvisols* - (FAO, 1988); *Vertisols* - (VR, FAO 1988); *Leptosols* - (LP, FAO 1988), *Luvisols* - (FAO, 1988); *Planosols* - (FAO, 1988)

Section 2- *Fluvisols* (FAO, 1988); *Vertisols* - (VR, FAO, 1988)

Section 3- *Fluvisols* (FAO, 1988); *Leptosols* - (LP, FAO 1988), *Luvisols* - (FAO, 1988); *Planosols* - (FAO, 1988), *Vertisols* - (VR, FAO 1988), *Solonetz* - (SN, FAO 1988, 1990).

The project is identified as a project of national importance with Decision No. 771 of the Council of Ministers (Bulgaria) dated 21 October 2011. The total length of the OHTL shall be 236,011 kilometers.

The route of the 400 kV line meets the following conditions and technical requirements:

- has the smallest possible length consistent with the requirements for approach to engineering facilities (highways, roads, railways, overhead lines, buildings including photovoltaics, wind turbines and others.)

- does not pass through regulated territories according to the Spatial Development Act, including potential borders for development of settlements, resort and villa zones, natural monuments and reserves.

- does not pass through swampy areas and landslides, does not affect large forest massifs.

- the crossing through protected areas including the National Ecological Network "Natura 2000" is limited

- using of possibilities for passing through existing energy corridors with minimum number of crossings of other existing overhead lines.

- minimum investments.

There is no evidence of contaminated soil along the area of the route. Presence of contaminated land and soils is possible only in the area of the town of Galabovo - the site of TPP "Maritsa Iztok 3" and the land close to Lukoil.

3.5.3. Main designation, property and category of affected land

The route of the new OHTL400 kV passes mainly through agricultural areas - arable and non-arable, forest areas, natural gullies, gorges, water areas, brownfields, areas for transport.

Ownership of the affected land is mostly private, state public and state private, municipal public and municipal private, owned by public organizations and managed by the municipality.

3.6. Landscape

The route of the power line falls in a relatively urbanized area with constructed ground and underground infrastructure. The site is in an area with settlements and constructed infrastructure – passes through existing OHTLs, crosses a pipeline and roads from the national network, passes through settlements, industrial and commercial areas, roads, canals, rivers.

The route passes mainly through agricultural land - arable and non-arable.

Depending on the prevailing feature of the territory, the landscapes in the region refer to:

- settlement (urban) landscapes, areas of transport, damaged areas - with anthropogenic changes and balanced components;

- agricultural (agrolandscapes) – with conditional ecological balance.
- presence of natural landscapes with anthropogenic changes
- natural landscapes, forests, water areas, protected areas under the Protected Areas Act and protected sites under Natura 2000.

The total length of the line is 236,011 kilometers. Each landscape area differs from the neighboring regions by local features of the rock substrate, mezorelief, horizontal and vertical landscape structure.

3.7. Natural sites

Near the area of the route of a 400 kV OHTL are the following protected areas according to of the PAA.

Section 1 – chosen Option IIa

Natural landmark “Fossil fragments”, Protected area „Ayazmoto zemlishte” Konush village, **Protected area “Sharenia ostrov”** town of Prvomai. **Protected area „Propadnaloto blato“** Golyamo Asenovo village, **Natural monument Group of 12 letnodabovi darveta** Skobeleva village, **Protected area Noshtuvka na malak kormoran** Radieva village, **Protected area Nahodishte na blatno kokiche** Vinitza village, **Protected area Martvitsata** Popovitsa village, Sadovo Municipality, **Protected area “Debelata koria”** Chernozem village, Kaloianovo Municipality

Section 1 – alternative Option I

Protected area „Ayazmoto zemlishte” Konush village, Asenovgrad Municipality

The alternative and selected Options of the HTL route overlap in the territory along the protected area.

Natural landmark “Fossil fragments”, Protected area Martvitsata, Protected area “Sharenia ostrov”, Protected area Nahodishte na blatno kokiche, Protected area “Propadnaloto blato“, Natural monument Group of 12 letnodabovi darveta area Paraklisa zemlishte - Skobeleva village, Dimitrovgrad Municipality, **Protected area Noshtuvka na malak kormoran SFF - Radieva** village, town of Dimitrovgrad.

Section 2

Natural monument „Dolmen” – Glavan village.

Section 3 – chosen Option III

Reserve Gorna Topchia – Konevets village Tundzha Municipality, **Maintained reserve „Dolna Topchia”, Protected area Debelata Koria** – Tenevo village, **Protected area „Tetralika”** – Simeonovo village, Tundzha Municipality, **Natural monument Aitoska koria** –town of Aitos, **Natural monument Nahodishte na bodlivo sgrabiche** – town of Aitos, **Natural monument „Trite btatya”** town of Aitos, **Protected area „Hisarya”** town of Aitos **Protected area “Koriata”** (near town of Kameno), **Protected area “Koriata”** (near **Ravnets village**), **Maintained reserve Atanasovsko ezero** town of Burgas, **Protected area Vaya is part of Burgas Lake**, land of Dolno Ezerovo and Gorno Ezerovo villages, Burgas Municipality.

Section 3 – alternative Option I

Reserve Gorna Topchia – land of Konevets village Tundzha Municipality, **Maintained reserve „Dolna Topchia”**:

An Appropriate assessment report is applied to the EIA Report, according to Art. 31 (1) of the Ordinance on the conditions and procedures for assessing the compatibility of plans, programs, projects and investment proposals with the object and purpose of conservation of protected sites.

3.8. Biodiversity and its components

3.8.1. Characteristics of the condition and prognosis and assessment of the impact on vegetation - on dominant and endangered species; changes in status as a result of project implementation

3.8.1.1. Characteristics of the vegetation state in the area of the route

Section 1

According to geobotanical zoning of Bulgaria (Bondev1997) the route of the power line passes through *European deciduous forest area, Macedonian-Thracian province*. The power line route passes through 2 counties and 3 regions:

- *Gornotrakiiski District, Plovdiv region.*
- *Gornotrakiiski District, Rhodopian - predplaninski region*
- *Chirpan region*
- *Stara Zagora region*
- *Eastern Rhodopean District, Haskovo region*

Section 2

The route passes through *Macedonian-Thracian province, Gornotrakiiski District, Haskovo region and Stara Zagora region* (described above).

Section 3

The route passes through *Macedonian-Thracian province*:

- *Gornotrakiiski District, Haskovo region and Stara Zagora region* (described above);
- *Strandzha - Aitos District, Aitos region and Straldzha – Sliven region*
- *Sakar-Derventski District, Dervent region*
- *Sakar-Derventski District, Sakar region*
- *Evksinska province, West Coast Black Sea District, South Coast region*

The route of the concerned of 400 kV OHTL passes mostly through agricultural lands - fields, orchards etc. Natural and semi-natural vegetation outside the boundaries of Natura 2000 network protected sites is established in the following sections:

Section 1

- immediately after Benchmark 8, south of sq. Debar in the town of Parvomay - 700 m of the route cross abandoned vineyards, overgrown with bushes and single trees;
- after Benchmark 9, northeast of Byala Reka village - 195 m of the route cross mesophilic grasslands along a gully;
- before Benchmark 10, southwest of Stalevo village - 1480 m of the route cross dry grasslands with shrubs
- before Benchmark 10, south of Stalevo village - 540 m of the route cross trodden grasslands;

- before Benchmark 11, northwest of Yabalkavo village - 120 m of the route cross trodden grasslands;
- before Benchmark 13, northwest of sq. Tchernokonyovo, town of Dimitrovgrad. - 710 m of the route cross 2 gullies, overgrown with shrubs, meadow and groups of trees;
- after Benchmark 13, north of sq. Tchernokonyovo, town of Dimitrovgrad - 215 m of the route cross a gully overgrown with bushes;
- after Benchmark 14, immediately southeast of Bryast village - 130 m of the route cross pasture;
- before Benchmark 15, northwest of Radievo village - 145 m of the route cross a gully, overgrown with shrubs and grass vegetation;
- before Benchmark 15, north of Radievo village - 510 m of the route cross a gully with mesophilic grasslands and a hill with dry grasslands, mixed forest of acacia (*Robinia pseudoacacia*) and oak (*Quercus sp.*) and thorn bushes (*Paliurus spina-christi*);
- before Benchmark 16, northeast of Malko Asenovo village - 153 m of the route cross Arpadere, overgrown with mesophytic and hygrophytic grass vegetation and single willows (*Salix sp.*);
- immediately after Benchmark 16, southeast of Stoletovo village - 108 m of the route cross Klisedere, overgrown with hygrophytic vegetation and shrubs;
- after Benchmark 16, north of Vasil Levski village - 1255 m of the route cross several small gullies along arable land overgrown with dry (pasture) and mesophytic grass vegetation;
- before Benchmark 17, northeast of Vasil Levski village - 500 m of the route cross riparian vegetation of Musachka river - probably shrub willows due to logging and the river itself with adjacent hygrophytic vegetation;
- before Benchmark 17, northwest of Musachevo village - 520 m of the route cross dry grasslands and a gully overgrown with shrubs;
- before Benchmark 19, southeast of sq. Mityo Stanev, town of Galabovo - 180 m of the route cross dry grasslands, overgrown with bushes, probably thorn;
- around Benchmark 19, southwest of s/s "Maritsa Iztok" 400 kV - 350 m of the route cross dry grasslands, overgrown with bushes, probably thorn.

Section 2

- before Benchmark 7, south of Obruchishte village - 115 m of the route cross dry grasslands;
- after Benchmark 7, southeast of Obruchishte village - 107 m of the route cross Kumlia river with adjacent riparian willow trees;
- between Benchmark 8 and 9, west of Mednikarovo village- 945 m of the route cross low-growing oak forest with adjacent dry grasslands.

Section 3

- between Benchmark 5 and 6, south of Iskrets village - 2600 m of the route cross low-growing oak forest, mixed with conifer plantations in very bad condition as a result of felling;
- after Benchmark 6, south of Madrets village - 445 m of the route cross Torladere with adjacent dry grasslands and shrubs;
- after Benchmark 6, south and southeast of Madrets village - 1420 m of the route cross several gullies flowing into Madrets reservoir, with adjacent dry grasslands dominated

by *Chrysopogon gryllus*, shrub formations, incl. dominated by thorn, willow riparian forests and limited areas of mesophytic grasslands;

- after Benchmark 6, south and southeast of Madrets village - 1420 m of the route cross several gullies flowing into Madrets reservoir, with adjacent dry grasslands dominated by *Chrysopogon gryllus*, shrub formations, incl. dominated by thorn, willow riparian forests and limited areas of mesophytic grasslands;

- immediately before Benchmark 7, to before Benchmark 8, south of Vladimirovo village - 3215 m of the route cross massif dominated by shrub vegetation - thorns, hawthorn (*Crataegus monogyna*), rose hip (*Rosa sp.*), blackthorn (*Prunus spinosa*) and other, with single or groups of oak trees (*Quercus sp.*), field maple (*Acer campestre*), tatarian maple (*Acer tataricum*), european wild pear (*Pyrus pyraster*), cherry plum (*Prunus cerasifera*), field elm (*Ulmus minor*) and other, self-wooded acacia (at the beginning of the section clean acacia culture is crossed) and black pine (*Pinus nigra*); the habitat is a remnant of a mixed plantation of oak and black pine that have been cut in the past; in places where there is no tree-shrub vegetation are formed dry grasslands dominated by *Chrysopogon gryllus* and *Dichanthium ischaemum*; in relief micro-declines is developed mesophyte and at some places hygrophytic grasslands;

- around Benchmark 8 northwest of Orlov dol village - 690 m of the route cross dry grasslands (pastures) dominated by *Dichanthium ischaemum* with single thorn bushes and a small water body;

- after Benchmark 8, northwest of Orlov dol village, after the way to town of Topolovgrad – Svetlina village - about 4470 m of the route cross hill overgrown with sparse oak forests and dry grasslands (near Svetlina village are used as pastures), dominated by *Chrysopogon gryllus* and *Dichanthium ischaemum*; crosses and Sokolitsa river, with riparian forests of willow (*Salix alba*) and silver poplar (*Populus alba*) and a haymaking meadow, and several gullies, among which Konduzdere and Selska reka are bigger; there are also riparian forests and haymaking meadows around the first;

- between Benchmark 8 and 9, south of Svetlina village - 195 m of the route cross swampy area with several small water basins overgrown with reeds (*Phragmites australis*), bulrush (*Typha sp.*), hygrophytic vegetation and single willows and poplars;

- around Benchmark 9, northwest and north from Kammena reka village - about 850 m of the route cross several gullies, surrounded by arable land overgrown with bushes and single or groups of trees, mainly field elm, tatarian maple, cherry plum, in places with bands of xerophytic - to mesophytic vegetation;

- after Benchmark 10, southwest of Golyam Manastir village - about 350 m of the route cross several gullies, surrounded by arable land overgrown with bushes and single or groups of trees, mainly field elm, tatarian maple, cherry plum, and dry grassy areas (pastures), sometimes overgrown with thorn;

- before Benchmark 11, south of Golyam Manastir village - 67 m of the route cross small water basin;

- immediately before Benchmark 11, southeast of Golyam Manastir village - 66 m of the route cross a gully overgrown with bushes and single or groups of trees;

- after Benchmark 11, east of Golyam Manastir village- 200 m of the route cross Geradzhidere, overgrown with hygrophytic vegetation and the left side is occupied by abandoned agricultural land and a sparse, low-growing oak forest;

- between Benchmark 11 and 12, southwest of Malak Manastir village - about 1180 m of the route cross a gully and abandoned vineyards; at some places succession has progressed and together with the banks of the gully forms dry grasslands with single or groups of shrubs and trees;

- before Benchmark 12, north and northeast of Malak Manastir village - about 2150 m of the route cross the southeast branch of the Monastery Heights, overgrown on the ridge with sparse, low-growing oak forest, the lower parts are occupied by dry grasslands, the western slopes are overgrown with bushes (probably thorn); on this slope there is an abandoned quarry forming some very small water basins;

- after Benchmark 12, southeast of Drama village - about 1500 m of the route cross the east branch of the Monastery Heights, overgrown with oak forest; at the beginning of the section there is a gully overgrown with a narrow strip of trees, after it there is a field; at the end of the section are observed traces of afforestation;

- between Benchmark 12 and 13, on both sides of the road Drama - Drianovo - about 500 m of the route cross dry grasslands, overgrown with single and groups of bushes (mostly thorn) and trees (mainly oak);

- before Benchmark 13, southwest of Malomir village - about 750 m of the route cross oak forest, mesophytic grasslands (probably haymaking meadows) and a small dam;

- before Benchmark 13, northwest of Malomir village - 260 m of the route cross mesophytic and hygrophytic grasslands formed in the place of dried up small dam;

- after Benchmark 13, north of Malomir village - 440 m of the route cross mesophytic and hygrophytic grasslands, formed at the "tail" of the dam;

- between Benchmark 14 - 15, northeast of Tamarino village - about 60 m of the route cross Boadere, overgrown with bushes and single and groups of raywood (*Fraxinus oxycarpa*), willow and other;

- after Benchmark 15, northwest of Voynika village - 155 m of the route cross Batakivata river, overgrown with tree vegetation;

- before Benchmark 16, southeast of Lyulin village - about 330 m of the route cross Inimalenska river and Filev Dol, overgrown with tree vegetation, composed of field elm, tatarian maple, field maple, field ash, oak, cherry plum, willow and shrubs;

- after Benchmark 16, east of Bogorovo village - 205 m of the route cross micro-dam at Arkachka river, and adjacent mesophytic and hygrophytic grass associations;

- between Benchmark 16 and 17, south of Dobrinovo village - the route crosses several gullies, overgrown with shrubs and single and in groups trees;

- after Benchmark 17, northwest of Cherkovo village - about 130 m of the route cross the "tail" of a small dam at Golyamata river;

- after Benchmark 18, north of Cherkovo village - 960 m of the route cross young oak forest (probably clearing);

- after Benchmark 18, north of Cherkovo village - 77 m of the route cross Karaormanska river, overgrown with tree vegetation;

- between Benchmark 18 and 19, northeast of Asparukhovo village - 710 m of the route cross 2 gullies, overgrown with shrubs and single and groups of willows, black poplar (*Populus nigra*) and other, and the located between and around them dry grasslands (pastures), overgrown in places with thorns;

- between Benchmark 18 and 19, east of Troianovo village - 1010 m of the route cross dry grass communities (overexploited pastures), a small dam and a small water basin, and at the end of the section of small plantations of acacia and black pine;
- immediately after Benchmark 19, south of Troianovo village - 52 m of the route cross Chakarliyka river overgrown with riparian forest of willows and poplars;
- before Benchmark 24, northwest of Kameno village - 89 m of the route cross a gully, overgrown with shrubs – the "tail" of a dried up small dam;
- immediately after Benchmark 24, southeast of Balgarevo village - 340 m of the route cross a hill occupied by dry grass communities overgrown with thorn;
- from before Benchmark 25 to Benchmark 26, south of Balgarevo village - 840 m of the route cross a hill occupied by an abandoned orchard, bordered to the west by Kavakdere, overgrown with riparian forest of willows and poplars; as a result of succession processes orchard turned into dry grass communities, overgrown with thorns; dry grass communities, overgrown with thorns.

In the area of the route - in the lands occupied by pastures and meadows, and in the headland of arable lands are found plants that are collected as herbs: common hemp-nettle (*Galeopsis tetrahit*), hemlock (*Conium maculatum*), danewort (*Sambucus ebulus*), common vervain (*Verbena officinalis*), common dandelion (*Taraxacum officinale*), spiny restharrow (*Ononis spinosa*), white bryony (*Bryonia alba*), motherwort (*Leonurus cardiaca*), narrowleaf and broadleaf plantain (*Plantago lanceolata* and *P. major*), yellow melilot (*Melilotus officinalis*), common nettle (*Urtica dioica*), chamomile (*Matricaria chamomilla*), mullein (*Verbascum nobile*), common poppy (*Papaver rhoeas*), cornflower (*Centaurea cyanus*), shepherd's-purse (*Capsella bursa-pastoris*), common knotgrass (*Polygonum aviculare*), mugwort (*Artemisia vulgaris*), water pepper (*Polygonum hydropiper*), field bindweed (*Convolvulus arvensis*), watercress (*Nasturtium officinale*), common fumitory (*Fumaria officinalis*), common soapwort (*Saponaria officinalis*), common chicory (*Cichorium intybus*), common mallow (*Malva sylvestris*), Jimson weed (*Datura stramonium*), dry grass (*Cynodon dactylon*), and other. Species with limited distribution in the country can be met and such as living in specific habitats. The status of their natural populations requires strict control over the seizure of plant mass and supplementary measures for their restoration. The region through which the route passes is not regulated as a clean area for collecting herbs. The area is mostly (over 90%) agricultural land.

3.8.1.2. Endangered and protected plant species along the project

According to Peev (2011) in the area of the 400 kV OHTL route, there is an opportunity for dissemination of the following species included in the Red Book of Bulgaria: *Endoptychum agaricoides*, *Polyporus rhizophilus*, four leaf clover (*Marsilea quadrifolia*), Elwes's snowdrop (*Galanthus elwesii*), saw-sedge (*Cladium mariscus*), *Fritillaria sibirnyi*, *Tulipa aureolina*, early marsh-orchid (*Dactylorhiza incarnata*), *Himantoglossum caprinum*, Mat-grass *Fescue (Vulpia unilateralis)*, *Bupleurum odontites*, *Ferula orientalis*, *Prangos ferulacea*, *Achillea thracica*, *Anthemis rumelica*, *Carduus thracicus*, *Centaurea inermis*, *Crepis stojanovii*, *Tragopogon sibirnyi*, *Anchusa stylosa*, *Capsella bursa-pastoris* subsp. *Thracica*, *Arenaria gypsophiloides*, *Dianthus pallidiflorus*, *Astracantha thracica*, *Astragalus exscapus*, *Geranium tuberosum*, *Stachys milanii*, *Paeonia tenuifolia*, *Roemeria hybrida*, *Plantago tenuiflora*,

Caltha polypetala, Delphinium balcanicum, Delphinium peregrinum, Ranunculus fontanus, Lindernia procumbens, Veronica glauca, Celtis glabrata.

Two species included in the Red Book of Bulgaria were identified during the field studies - *Himantoglossum caprinum* and *Eryngium creticum*. The first was found along the road between Vladimirovo and Orlov Dol villages, and the second within the Protected area River Martinka.

Pursuant to the requirements set in the Letter of the MOEW, No. -203/10.04.2013, p.4, species falling under **Annex No.3 to Art. 37 of the Biodiversity Act**, are as follows:

Marsilea quadrifolia, Galanthus elwesii, Fritillaria pontica, Fritillaria sibirnyi, Tulipa aureolina, Dactylorhiza incarnata, Himantoglossum caprinum, Limodorum abortivum, Ferula orientalis, Prangos ferulacea, Sium sisarum, Achillea thracica, Anthemis rumelica, Carduus thracicus, Centaurea inermis, Crepis stojanovii, Tragopogon sibirnyi, Anchusa stylosa, Alkanna sibirnyi, Buglossoides glandulosa, Capsella bursa-pastoris subsp. Thracica, Arenaria gypsophiloides, Dianthus pallidiflorus, Euphorbia lucida, Astracantha thracica, Astragalus exscapus, Nepeta ucranica, Paeonia tenuifolia, Goniolimon collinum, Ranunculus fontanus, Galium rubioides, Lindernia procumbens, Veronica glauca.

3.8.2. Characteristics of the condition and the prognosis, and assessment of the impact on the fauna - on dominant and endangered species; migration corridors; changes in status as a result of project implementation

3.8.2.1. Characteristics of the state of the fauna along the route

According to the zoogeographical zonation of Bulgaria (Georgiev, 1980) the territory of the concerned investment proposal falls within Southern Region, Thracian area.

The main part of the fauna is composed of European, Euro-Siberian and holo-Palaeartic species. Many thermophilic Mediterranean, transitional-Mediterranean, front-Asian steppe forms are widespread with them there. Typical are the large number of thermophilic widespread in southern Bulgaria amphibians, reptiles, birds, and living in the open lowlands digging and other mammals.

The mammals are represented by the following species: striped field mouse (*Apodemus agrarius*), Cape hare (*Lepus capensis*), common vole (*Microtus arvalis*), European mole (*Talpa europaea*), European pine vole (*Microtus subterraneus*), European ground squirrel (*Spermophilus citellus*) and other.

The majority of the route passes through areas which according to its biocenotic value can be classified as biocenoses created by man and are under strong anthropogenic influence, with a high degree of tolerance and lack of unique flora and fauna.

3.8.2.2. Endangered animal species

The following species included in the Red Book of Bulgaria were identified during field research in the area of the route:

| No. | Species | Latin name | Habitat | Location |
|-----|--------------------|--------------------------|-------------------------|----------|
| 1 | Balkan pond turtle | <i>Mauremys rivulata</i> | rivers, stagnant waters | Sakar |

| No. | Species | Latin name | Habitat | Location |
|-----|---------------------------|-------------------------------|---------------------------------------|---|
| 2 | spur-thighed tortoise | <i>Testudo graeca</i> | grassy places, shrubs, sparse forests | Sazliyka river, Sakar |
| 3 | Hermann's tortoise | <i>Testudo hermanni</i> | grassy places, shrubs, sparse forests | Sokolitsa river, Tundzha river, Sakar, Maritsa river |
| 4 | European legless lizard | <i>Ophisaurus apodus</i> | grassy places, shrubs, sparse forests | Sakar |
| 5 | Blotched snake | <i>Elaphe sauromates</i> | fields, grassy areas, shrubs, forests | Bakadzhitsite, Cherkezitsa river, Tundzha river |
| 6 | great crested grebe | <i>Podiceps cristatus</i> | stagnant waters | Rozov kladenets dam, Maritsa river, Sakar |
| 7 | little grebe | <i>Tachybaptus ruficollis</i> | stagnant waters | Konush dam, Maritsa river, Chaya river |
| 8 | pygmy cormorant | <i>Phalacrocorax pygmeus</i> | riparian forests | Maritsa river |
| 9 | grey heron | <i>Ardea cinerea</i> | riparian forests | Merichlerska river, Maritsa river, Sazliyka river, Sakar, Tundzha river, dams around village of Opan, Kayaliyka river, Konush dam, Aitoska mountain, Sokolitsa river, Bakadzhitsite |
| 10 | squacco heron | <i>Ardeola ralloides</i> | riparian forests | Mechka river, Maritsa river |
| 11 | great egret | <i>Egretta alba</i> | riparian forests | Chaya river, Maritsa river, dams around village of Opan |
| 12 | little egret | <i>Egretta garzetta</i> | riparian forests | Mechka river, Maritsa river, Tundzha river, Konush dam, Chaya river, Sazliyka river, Cherkezitsa river |
| 13 | little bittern | <i>Ixobrychus minutus</i> | stagnant waters | Bakadzhitsite, Maritsa river, Tundzha river |
| 14 | black-crowned night heron | <i>Nycticorax nycticorax</i> | riparian forests | Mechka river, Maritsa river, Konush dam, rtink river, Cherkezitsa river |

| No. | Species | Latin name | Habitat | Location |
|-----|------------------------|-----------------------------|---------------------------------------|--|
| 15 | white stork | <i>Ciconia ciconia</i> | settlements | Maritsa river, Tundzha river, Konush dam, Chaya river, rtink river, Sazliyka river, Sokolitsa river, Sakar |
| 16 | black stork | <i>Ciconia nigra</i> | deciduous forests, rocks | Maritsa river, Sakar, Tundzha river, Kayaliyka river, Aitoska mountain, rtink river, Bakadzhitsite |
| 17 | glossy ibis | <i>Plegadis falcinellus</i> | stagnant waters | Tundzha river |
| 18 | ruddy shelduck | <i>Tadorna ferruginea</i> | stagnant waters | Aitoska mountain |
| 19 | common shelduck | <i>Tadorna tadorna</i> | rivers, stagnant waters | Aitoska mountain |
| 20 | Levant sparrowhawk | <i>Accipiter brevipes</i> | riparian forests | Maritsa river |
| 21 | northern goshawk | <i>Accipiter gentilis</i> | forests | Sakar |
| 22 | Eurasian sparrowhawk | <i>Accipiter nisus</i> | forests | Konush dam |
| 23 | eastern imperial eagle | <i>Aquila heliaca</i> | outskirts of forests | Sakar |
| 24 | Lesser spotted eagle | <i>Aquila pomarina</i> | forests | Tundzha river, Maritsa river, Sakar |
| 25 | long-legged buzzard | <i>Buteo rufinus</i> | rocks | Maritsa river, Sakar |
| 26 | short-toed snake eagle | <i>Circaetus gallicus</i> | sparse forests | Maritsa river, Sakar, Tundzha river |
| 27 | western marsh harrier | <i>Circus aeruginosus</i> | reedbeds | rtink river |
| 28 | hen harrier | <i>Circus cyaneus</i> | fields, grassy areas, stagnant waters | Maritsa river |
| 29 | Montagu's harrier | <i>Circus pygargus</i> | fields, meadows, marshy places | Merichlerska river, Maritsa river, Sakar, Mechka river, Aitoska mountain |
| 30 | white-tailed eagle | <i>Haliaeetus albicilla</i> | riparian forests | Bakadzhitsite, Sakar |
| 31 | booted eagle | <i>Hieraaetus pennatus</i> | deciduous forests | Sokolitsa river, Sakar |

| No. | Species | Latin name | Habitat | Location |
|-----|--------------------------|-------------------------------|--|---|
| 32 | black kite | <i>Milvus migrans</i> | forests | Sazliyka river, Maritsa river, Tundzha river |
| 33 | European honey buzzard | <i>Pernis apivorus</i> | forests | Sakar |
| 34 | peregrine falcon | <i>Falco peregrinus</i> | rocks | Merichlerska river |
| 35 | Eurasian hobby | <i>Falco subbuteo</i> | forests, open spaces with single trees | Chaya river, Maritsa river, rtink river, Sokolitsa river |
| 36 | Eurasian oystercatcher | <i>Haematopus ostralegus</i> | rivers, stagnant waters | Maritsa river |
| 37 | black-winged stilt | <i>Himantopus himantopus</i> | stagnant waters | Maritsa river |
| 38 | little ringed plover | <i>Charadrius dubius</i> | banks without vegetation | Mechka river, Maritsa river, Tundzha river, Aitoska mountain, Sokolitsa river |
| 39 | green sandpiper | <i>Tringa ochropus</i> | rivers, stagnant waters | Aitoska mountain, Maritsa river, Tundzha river, Sakar, Cherkezitsa river |
| 40 | common redshank | <i>Tringa totanus</i> | rivers, stagnant waters | Maritsa river |
| 41 | whiskered tern | <i>Chlidonias hybridus</i> | stagnant waters | Maritsa river |
| 42 | common tern | <i>Sterna hirundo</i> | sandy banks | Aitoska mountain, Maritsa river |
| 43 | European roller | <i>Coracias garrulus</i> | open spaces with single trees | Merichlerska river, Maritsa river, Sakar, Konush dam, Sazliyka river, Sokolitsa river |
| 44 | grey-headed woodpecker | <i>Picus canus</i> | old deciduous and riparian forests | Maritsa river |
| 45 | calandra lark | <i>Melanocorypha calandra</i> | grassy places | Sakar |
| 46 | masked shrike | <i>Lanius nubicus</i> | riparian forests | Maritsa river |
| 47 | European ground squirrel | <i>Spermophilus citellus</i> | pastures | Sakar, Cherkezitsa river, Maritsa river, Tundzha river |
| 48 | European otter | <i>Lutra lutra</i> | rivers, stagnant waters | Maritsa river, Sakar, rtink river, Bakadzhitsite |
| 49 | wildcat | <i>Felis silvestris</i> | deciduous forests | Sakar |

The following species are included in **Annex No. 3 to Art. 37 of the Biodiversity Act:**
(the provisions of Art. 278d of the Criminal Code are applied for species marked with an asterisk (*))

European otter *Lutra lutra* (*) Family Mustelidae
Pygmy cormorant *Phalacrocorax pygmeus* (*) Family Phalacrocoracidae
Dalmatian pelican *Pelecanus crispus* (*) Family Pelecanidae
Grey heron *Ardea cinerea* Family Ardeidae
Little egret *Egretta garzetta* Family Ardeidae
Great egret *Egretta alba* Family Ardeidae
Black-crowned night heron *Nycticorax nycticorax* Family Ardeidae
Little bittern *Ixobrychus minutus* Family Ardeidae
White stork *Ciconia ciconia* Family Ciconiidae
Black stork *Ciconia nigra* Family Ciconiidae
Glossy ibis *Plegadis falcinellus* Family Threskiornithidae
Gadwall *Anas strepera* Family Anatidae
Lesser white-fronted goose *Anser erythropus* Family Anatidae
Ferruginous duck *Aythya nyroca* Family Anatidae
Common pochard *Aythya ferina* Family Anatidae
Red-breasted goose *Branta ruficollis* Family Anatidae
Whooper swan *Cygnus cygnus* Family Anatidae
adorna tadorna Family Anatidae
Osprey *Pandion haliaetus* (*) Family Pandionidae
Levant sparrowhawk *Accipiter brevipes* Family Accipitridae
Eurasian sparrowhawk *Accipiter nisus* Family Accipitridae
Lesser spotted eagle *Aquila pomarina* Family Accipitridae
Common buzzard *Buteo buteo* Family Accipitridae
Short-toed snake eagle *Circus gallicus* Family Accipitridae
Western marsh harrier *Circus aeruginosus* Family Accipitridae
Hen harrier *Circus cyaneus* Family Accipitridae
Griffon vulture *Gyps fulvus* (*) Family Accipitridae
Egyptian vulture *Neophron percnopterus* Family Accipitridae
Booted eagle *Hieraaetus pennatus* Family Accipitridae
Merlin *Falco columbarius* Family Falconidae
Red-footed falcon *Falco vespertinus* Family Falconidae
Common crane *Grus grus* Family Gruidae
Corn crake *Crex crex* (*) Family Rallidae
Kentish plover *Charadrius alexandrinus* Family Charadriidae
Little ringed plover *Charadrius dubius* Family Charadriidae
Eurasian oystercatcher *Haematopus ostralegus* Family Haematopidae
Common sandpiper *Actitis hypoleucos* Family Scolopacidae
Little stint *Calidris minuta* Family Scolopacidae
Common redshank *Tringa totanus* Family Scolopacidae
Pied avocet *Recurvirostra avosetta* Family Recurvirostridae
Whiskered tern *Chlidonias hybridus* Family Lariidae
Little gull *Larus minutus* Family Lariidae

Black-headed gull *Larus ridibundus* Family Lariidae
 Little tern *Sterna albifrons* Family Lariidae
 Caspian tern *Sterna caspia* Family Lariidae
 Sandwich tern *Sterna sandvicensis* Family Lariidae
 Stock dove *Columba oenas* Family Columbidae
 Common cuckoo *Cuculus canorus* Family Cuculidae
 Barn owl *Tyto alba* Family Tytonidae
 Short-eared owl *Asio flammeus* Family Strigidae
 Little owl *Athene noctua* Family Strigidae
 Common kingfisher *Alcedo atthis* Family Alcedinidae
 European roller *Coracias garrulus* Family Coraciidae
 Middle spotted woodpecker *Dendrocopos medius* Family Picidae
 Lesser spotted woodpecker *Dendrocopos minor* Family Picidae
 Grey-headed woodpecker *Picus canus* Family Picidae
 European green woodpecker *Picus viridis* Family Picidae
 Eurasian skylark *Alauda arvensis* Family Alaudidae
 Common house martin *Delichon urbica* Family Hirundinidae
 Barn swallow *Hirundo rustica* Family Hirundinidae
 White-throated dipper *Cinclus cinclus* Family Cinclidae
 Aquatic warbler *Acrocephalus paludicola* Family Sylviidae
 Eurasian reed warbler *Acrocephalus scirpaceus* Family Sylviidae
 Coal tit *Parus ater* Family Paridae
 Great grey shrike *Lanius excubitor* Family Laniidae
 Eurasian tree sparrow *Passer montanus* Family Ploceidae
 Spur-thighed tortoise *Testudo graeca* Family Testudinidae
 Hermann's tortoise *Testudo hermanni* (*) Family Testudinidae
 European pond turtle *Emys orbicularis* Family Emydidae
 Sand lizard *Lacerta agilis* Family Lacertidae
 European green lizard *Lacerta viridis* Family Lacertidae
 Slow worm *Anguis fragilis* Family Anguinae
 Caspian whipsnake *Coluber caspius* (*Coluber jugularis caspius*) Family Colubridae
 Blotched snake *Elaphe sauromates* Family Colubridae
 Aesculapian snake *Elaphe longissima* (*Zamenis longissimus*) Family Colubridae
 Dice snake *Natrix tessellata* Family Colubridae
 European green toad *Bufo viridis* Family Bufonidae
 Yellow-bellied toad *Bombina variegata* Family Discoglossidae
 European tree frog *Hyla arborea* Family Hylidae
 Common spadefoot *Pelobates fuscus* Family Pelobatidae

3.9. Cultural heritage

According to the records of the National Institute of Immovable Cultural Heritage cultural monuments has not been established near the chosen route of a 400 kV overhead line.

3.10. Waste

Waste that will be generated during the construction works of the project site will be treated in accordance with the Waste Management Act and the relevant secondary legislation.

3.11. Harmful physical factors: noise, vibration and harmful radiation (ionizing, non-ionizing, thermal, etc.), microclimate, high pressure and others.

Along the route of the 400 kV OHTL there are no sources of industrial and urban noise except in one section. Only the areas between benchmarks R9-R11 of Section 2 and R1-R4 of Section 3 fall near sources of industrial noise - the TPP Maritsa Iztok 3. In this section of the 400 kV overhead line is expected background noise up to 70 dB (A), which is in the limits of noise levels for production and storage areas and zones under „*Ordinance No. 6 of 26 June 2006 on indicators of environmental noise, taking into account the degree of discomfort in different parts of the day, limit values of noise indicators in the environment, methods of assessing the parameters of noise and harmful effects of noise on public health*”.

The route of the new overhead 400 kV crosses or runs parallel and enters the already existing energy corridors.

Along the 400 kV overhead line there are two sections where the background noise level is influenced by heavy traffic.

The existing background noise levels in areas around the roads with heavy traffic are:

- up to 60 dB (A) during the day;
- up to 55 dB (A) for the evening;
- and up to 50 dB (A) during the night.

The existing overhead line is equipped with "vibro acoustics silencer " to "put out" the vibrations that occur at certain weather conditions. In the area of overhead line there are no sources of vibration that spread in the surrounding area.

Along the route of the new OHTL 400 kV there are no sources of ionizing, ultraviolet and other radiations.

3.12. Health - hygienic aspects of the environment

The investment proposal is designed to connect s/s "Plovdiv" with s/s "Burgas" via an overhead transmission line through specified deviations and bends to s/s "Maritsa Iztok", by ensuring safe operation, safety of workers at the site, and the people living near the transmission lines during construction and subsequent operation of the facility. It should be noted that sources of electromagnetic radiation in the environment are high-voltage power lines and equipment from electricity grid. They have a defined area of impact on public health and workers within the specified easements.

In order to protect the public and workers' health, the land under power lines will not be used for residential buildings and there will be no carried out works on them. In the easement zones agricultural activities will be allowed, except for planting of long-lived trees with a height of over four meters.

The minimum width of the easement zones for the route in agricultural land is the horizontal distance between the end wires with a maximum deviation of plus 6 meters - three meters on both sides.

The size and location of the easement zones are defined in accordance with Ordinance No.16 / 09.06.2004 on the easements of energy facilities.

4. Description, analysis and assessment of the assumed significant effects on the population and the environment as a result of the realization of the investment proposal, the use of natural resources, emissions of harmful substances during normal operation and in emergency situations, the waste generation and creating discomfort

4.1. Ambient/ Atmospheric air

Conducting the excavations for the towers' steps during the construction phase and the movement of the machines are associated with temporary emissions of dust and exhaust gases which will have limited and insignificant impact on the environment.

The implementation of construction excavation works will involve minor local pollution from dust and exhaust gases from construction machinery in certain sections of the trace.

The operation of the OHTL is not related with issuing of air pollutants and it can not be expected a direct or indirect negative impact on air quality.

In terms of the impact on air quality there is no essential difference which Option (chosen Options: IIa of Section 1, Ia of Section 2 and III of Section 3 or alternative Options I of Section 1, II of Section 2 and I of Section 3) will be implemented.

4.2. Surface and underground waters

Surface waters

Surface water resources on the territory of the trace will not be affected by the project implementation: there is no need for correction of rivers, irrigation facilities etc., water consumption is not expected, no change in the watercourses regime shall be caused.

There will be no waste water disposal during the functioning of the facility.

A part of the trace in Section 1 of the newly designed 400 kV overhead transmission line falls in belt II of the sanitary protection zone (SPZ) - 11 tube wells (W) at bunker pump station „Katunitsa“ for drinking water supply (DWS) of Katunitsa village, Plovdiv District.

A part of the route in Section 1 crosses belts II and III of the SPZ of 2 TWs of pumping station (PS) "Karadzhovo" for DWS of the villages Karadzhovo and Kochevo, Sadovo Municipality and SPZ for 3 TWs of PS "Ahnatovo" for DWS of Ahmatovo-Popovitsa-Bogdanitsa-Seltsi, Plovdiv District.

Regarding the River Basins Management Plan (RBMP) of the East Aegean River Basin Directorate, there are no prohibitions imposed under Chapter No. 7, Annex No. 7-12 for the aforementioned SPZs and the type of activity of the investment proposal - transmission of electricity.

The conductors of the OHTL will pass above ground along the entire trace, above gullies and riverbeds, on the towers they are attached to.

The Site operation will not affect the quantitative regime and the quality of surface waters.

Underground waters

It is envisaged digging the ground to a depth of 2-3 m for the foundations of the towers during the OHTL construction.

The insignificant foundation depth does not imply any negative impact by the investment on the underground waters in the area.

Water resources on the trace territory will not be subject to impact by the project implementation.

During operation, there are no expected changes in the regime of watercourses and groundwaters, as the project does not foresee water use, corrections of rivers, irrigation facilities and others.

4.3. Geological base and earth bowels

It is envisaged digging the ground to a depth of 2-3 m for laying the foundations of the towers during the construction of the OHTL. The insignificant foundation depth does not imply reducing the stability of the geological environment.

No changes in the geological base are expected as a result of the project implementation.

4.4. Mineral diversity

There is no data for mineral resources under the steps of the towers along the overhead transmission line.

The project objective is the transmission of electrical energy rather than extracting mineral resources.

The project does not deal with mining and processing of underground resources.

4.5. Land and soil

The route of the new 400 kV OHTL passes mainly through agricultural lands – approximately 90%.

For all properties within the easement area of the 400 kV power lines, design limitations were introduced (acc. to Ordinance 16, promulgated with State Gazette No. 88 / 2004 on the easements of energy facilities). In the Detailed Development Plan (DDP), detailed information about the following is provided:

- the balance of the territory occupied by the easement area of the power lines;
- registers of the properties through which the trace passes, ownership, type of permanent use, category of land under non-irrigation conditions and size of the property;
- graphic materials.

Because of the affected properties of the State Land Fund, a preliminary consent was requested for passing of the OHTL through them; the consent was requested from the Ministry of Agriculture and Food through the regional agriculture directorates. The draft DDP has been granted positive opinions from the regional forestry directorates.

4.5.1. Disruption or change of land category depending on the degree of contamination or damage to the soil; change in soil fertility.

With Decision No. 771 of 21.10.2011, the Council of Ministers of the Republic of Bulgaria, on the grounds of § 1 of the Supplementary Provisions to the State Property Act, „Determines linear energy facility 400 kV overhead transmission line s/s "Maritsa Iztok" - s/s "Burgas", which will be constructed on the territory of the municipalities of Simeonovgrad, district Haskovo, Radnevo, district Stara Zagora, Nova Zagora, district Sliven, Tundzha, Yambol and Straldzha, district Yambol, Karnobat, Aytos, Kameno and Burgas, district Burgas, as a national site".

As per Article 5 of Ordinance No. 16 of June 9, 2004 on the easements of energy facilities, the location of the easement zones shall be determined by the general and detailed development plans based on the location of energy facilities - in accordance with the terms and conditions of the Spatial Development Act, the Agricultural Land Protection Act (ALPA) and the rules for the implementation of the ALPA, the Forest Act and the rules for the implementation of the FA, the Protected Areas Act, the Energy Act, the Protected Areas Management Plan, the Cultural Monuments and Museums Act (1÷5).

According to the Energy Act, easements arise when:

- there is a DDP/PP into force, which determines the location of the respective properties, and
- the holder of the easement has paid a one-time compensation to the owner of the property on which the easement has been established, and to the holders of other real rights over the affected property.

The designation of the affected land will be changed following a procedure provided in the ALPA and the rules for its implementation, after the DDP/PP has been approved. Enforced decisions or opinions issued under Chapter Six of the Environmental Protection Act and Art. 31 of the Biodiversity Act are required to determine the sites and trace.

The agricultural lands are considered with changed designation as of the entry into force of a detailed development plan (DDP) which envisages the construction of a national or municipal site of primary importance, which becomes public state or public municipal property.

The route of the 400 kV OHTL s/s "Plovdiv" – s/s "Maritsa Iztok 3" – s/s "Burgas" has been approved by the municipalities, as required by the Rules for implementation of the ALPA" (SG, 84/1996), as follows:

The project implementation does not deal with other land uses.

The size and locations of the easement zones are in accordance with Ordinance No.16 / 09.06.2004 on the easements of energy facilities:

In total, for an easement on agricultural territory, about 9538.24 ha (average 91.5%) of the total area required for an easement of a 400 kV OHTL are necessary.

In total, for an easement in forest area, about 479.953 ha (average 4.94%) of the total area required for an easement of a 400 kV OHTL are necessary.

A total of 773 towers will be erected on the trace of the new 400 kV OHTL, and for their foundations an average of 150 m²/km area/agricultural land/ or a total of about 35 374.65 m² should be expropriated. The area occupied by the towers is within the regulations.

The locations of the new towers are consistent with the property boundaries.

During construction

The impact on soil associated with the construction of the OHTL will be direct and single.

Excavation works for tower foundations (about 2976 m³) will be carried out. The excavated earth will be stored near the foundations and used for backfilling and landscaping around them.

The humus layer will be removed before starting the construction works, deposited separately from the other excavated earth and used properly.

The temporary roads, approaches and construction sites will be determined in accordance with local conditions, as the existing ones will be used as much as possible.

During the construction of the power line through areas with vegetation, single trees will be cut down within the minimum easement areas.

Going through protected areas, as well as the construction of towers and foundations will be carried out under sparing conditions - without large excavations, with minimal compacting of the adjacent lands.

The deployment of temporary sites for construction equipment and of temporary roads will be outside of the protected areas.

During construction and operation of the OHTL, no increase of the erosion and landslide processes in the area shall be allowed.

Change in soil fertility is not expected.

After Project completion, the places for temporary roads and sites will be recultivated and restored.

During operation

The technological process of the power line is the transmission of electricity.

There are no waste products during OHTL operation.

Damage to the soil cover - compacting and local pollution during operation, is related to the execution of certain maintenance and supporting activities in the easement areas through the use of machinery and equipment..

4.6. Landscape

The main negative impact of overhead transmission lines is on the visible aesthetic part of the landscape, passing almost straight through plains, mountains, rivers. When passing through forests clearings are cut, which alter the integrity of the forest and distort its aesthetic impact. The impact period is unlimited (as long as operation continues).

After the construction of the power line, the visual impact of the changed landscape of the territory will be permanent, but the main type of landscape will not be changed.

During the construction works the landscape will be changed. The changes are related to distortion of the geological base, the surface earth layer, the vegetation and visibility - from the use of machinery and equipment (noise, harmful emissions) and the accumulation of certain quantities of excavated soil and equipment.

The time during which there will be impact is very short, and depends on the particular climate conditions.

Landscape changes are related to the visibility of the power line. With the construction of the power line, the visual impact of the changed landscape of the territory will be permanent, but the main type of landscape will not be changed.

The construction of the OHTL is possible without changing the main structure of the landscape and its functioning.

The main negative impact of overhead transmission lines is on the visible aesthetic environment – a new visual object is inserted. The impact period is unlimited (as long as operation continues). However, a significant change in the landscape is not expected.

4.6.2. Forecast and assessment of the expected landscape damage, taking into account landscape resistance to the specific type of impact.

The main negative impact of overhead transmission lines is on the visible aesthetic part of the landscape. The effect is relative in terms of the perception of the individual. The exposure period is unlimited (as long as operation continues).

There will be a certain impact on the landscape during the construction phase. The use of heavy construction equipment, the accumulation of towers and other construction materials, the significant excavation works, the temporary storage of land masses and humus will disturb the aesthetics of the landscape.

The problems that arise from the interaction between the technical infrastructure as a functional system and the landscape as a territorial system, depending on their origin and character may be economic, technical, and aesthetic. The visual impact of the change in the type of terrain can be mitigated if low-growing vegetation is planted along the trace of the OHTL.

Due to the very character and the technological requirements to the OHTL route and its location, there is an opportunity after implementation, the character of the main type of landscape to be preserved, despite the visual changes.

4.7. Natural sites

The considered route passes in a section of 900 meters through a protected area – Natural landmark “**Fossil fragments**”.

Near the route, there are protected areas under the Protected Areas Act (PAA), described in section 3.7. of the EIA Report.

The trace passes through 4786 meters in total of the protected areas of Natura 2000. A Compatibility Report has been attached to the EIA Report, regarding the impact on the Natura 2000 protected sites.

During construction

The impact on Natural landmark “Fossil fragments” will be direct. Excavation works will be carried out for the construction of tower foundations.

It is necessary the construction works to be carried out in the presence of an expert in fossils. It is possible excessive noise to appear from the used construction equipment during working hours, which will cause discomfort to the fauna representatives in the nearby protected areas.

The location of temporary sites for construction equipment and temporary roads will be outside of the protected areas.

All of the above described protected areas are situated at a distance from the route of the power lines and no negative impact is expected from the implementation of the investment intentions.

During operation

No negative impact is expected during operation. It is necessary to consider the requirements for strict application of work hygiene.

4.8. Biodiversity and its elements

4.8.1. Changes in the vegetation state resulting from project implementation.

The area which falls within the route of the OHTL is a part of a territory which can be classified as: biocenosis created by man and under anthropogenic influence with a high degree of tolerance.

The territories based on way of land use, forest types and tree species affected by the OHTL route, the necessary areas for easement in decares and % of the total easement area for the three sections per option are:

The route of Section 1 Option I (alternative) passes mainly through agricultural land (3988.56 decares) - 91% and forest territory (263.18 decares) - 6% of the total area. It crosses waters and water areas (96.97 decares) - 2% of the total area. The affected forest type is primarily of oak - 26%.

The route of Section 2 Option I passes mainly through fields - 70% and pastures - 7% of the total area, Option II (alternative) passes through fields - 57% and pastures - 12% of the total area.

Section 3 Option III affects mainly the following tree species: Hungarian oak, cerris, pubescent oak, and Option I mainly affects black pine, cerris, Hungarian oak.

- during construction

The main impact on vegetation is due to a greater extent to the construction itself of the power line. The most significant impact on flora and fauna is expected during the OHTL construction and the making of clearings through woodlands, trenches for laying the foundations and trampling of grass vegetation when erecting the towers through heavy construction equipment.

For the route of the new 400 kV OHTL, 773 towers will be erected and for their foundations an average of 150 m²/km area/land/ or a total of about 35374.65 m² should be expropriated. The area occupied by the towers is within the regulations.

Excavation works for tower foundations (about 2976 m³) will be carried out and the excavated earth will be used for backfilling and landscaping around the towers.

When trees are higher than four meters (poplar plantations along the rivers), cutting and trimming of single trees is permitted.

The grass will be destroyed in the area of the excavation works for tower foundations, the temporary deposition of excavation masses, erecting the towers and stretching of electric wires by specialized heavy equipment. Biozones located near temporary access roads will also be affected, though to a smaller extent. The heavy construction machines will be a local mobile source of harmful emissions, noise and vibrations.

In the easement lane it is possible individual trees with greater than the permissible height to be removed or trimmed because of the excavation and assembly works, the erecting of towers and stretching of electric conductors by heavy specialized equipment.

All clearance distances are in accordance with the applicable regulations and are complied with. After completion of the works, if necessary, damaged areas must be recovered with grass and planted with low-growing vegetation. The grassing should be done with grass mixtures suitable for the area, which do not require special cares. High-stem vegetation is not foreseen, according to the technological requirements of the facility.

- during operation

There are no waste products during the OHTL operation. Negative impact of the electromagnetic field is not expected. There will be no changes in the physiological development of the vegetation, resulting from the project implementation.

It is necessary to maintain the vegetation in the easement area as required by Ordinance No. 16 / 09.06.2004 on the easements of energy facilities. *During operation* clearings will not be made, and the necessary horizontal distances will be provided by cutting of single trees and branches. No deviations in the physiological development of the flora and fauna are expected.

4.8.2. Changes in fauna as a result of project implementation

The designation of the OHTL is the transmission of electricity. The site is a source of electromagnetic field during this transmission.

The distance of the conductors to the ground allows safe passage of humans and animals under the OHTL for an unlimited time.

- during construction

The main negative impact on the fauna will be during the construction itself of the power line, due to the entry of equipment and people - there will be excessive noise during working hours, which will cause discomfort to the occupants of the area. The impact will be temporary.

Destruction of some members of the fauna or partial fragmentation of some habitats is possible.

Standard devices against bird landing will be installed above all suspension strings. The Ministry of Environment and Water (MOEW) recommends the regular devices to be replaced with ones that do not cause injuries or death to the birds when they come in contact with them (recommendation with Ref. No. -293/10.04.2013).

- during operation

Negative impact from the operation of the new OHTL is not expected.

Along the trace of the power line, special devices for bird protection will be installed.

The realization of the investment intention will not change habitats and will not have a significant negative impact on the local representatives of the fauna.

A Compatibility Report is attached to the EIA Report, concerning the effects of the 400 kV OHTL on the representatives of the fauna in the area, primarily those inhabiting protected areas.

The OHTL is a source of electromagnetic field during the transmission of electricity. The distance of the conductors to the ground allows safe passage of humans and animals under the OHTL for an unlimited time. The local biocenosis is under strong anthropogenic influence, with a high degree of tolerance.

4.9. Cultural heritage

There are no cultural monuments along the chosen route of the 400 kV OHTL and near it.

Sites of cultural, historical or religious value are not affected by implementing the investment proposal.

4.10. Waste

The operation of this type of sites is not related to waste generation. Waste will be formed only in the period of construction - installation works or repair activities. These facilities do not emit hazardous waste and do not use toxic or hazardous substances during their work.

Wastes that will be generated in the course of construction and assembly works under the project are classified in accordance with *Ordinance No. 2 of 23 July 2014 on waste classification*.

The technological scheme and works at site, mainly during maintenance and repair activities, are associated with generation of industrial waste, ferrous and nonferrous metals and porcelain as follows:

Waste from excavation works

Code 20 02 02 soil and stones

Waste from the installation of towers and repair activities

Code 17 04 05 – iron and steel

Code 17 04 07 – mixed metals

Household wastes

Code 20 03 01 – mixed household waste

Municipal and construction waste will be collected separately in movable containers and transported periodically and disposed of by using the existing system for the treatment of municipal waste in the municipalities along the OHTL. In case of accidental damage, the chain insulators, conductors and towers will be replaced, and dismantled parts and the destroyed concrete will be transported to a suitable place. The terrain shall be restored after removing the towers.

4.11. Harmful physical factors: noise, vibrations and harmful radiation (ionizing, non-ionizing, thermal, etc.), microclimate, high pressure and others.

Noise pollution

• *During construction*

During project implementation, the construction, excavation and installation works will involve heavy transportation equipment which is a source of noise, usually below the acceptable values for a working environment. The noise will have a limited scope of impact.

During construction activities, noise will be emitted from:

- construction and transportation equipment;
- excavation and backfilling works for tower foundations;
- transportation of towers, conductors, etc.

The construction works will be carried out during daylight hours.

As a result of the project implementation, in the phase of construction the emitted noise levels will be higher than the permitted level for "residential areas and territories" – within 100 m from the source of the noise.

For Section 1, chosen Option II :

- Katunitsa village – 380 m north of the OHTL trace;
- Debar village – 350 m north of the OHTL;
- Stalevo village – 230 m north of the OHTL;
- Bryast village – 150 m north of the OHTL;
- resid. area Mityo Stanev, the town of Galabovo – 280 m north of the OHTL.

For Section 1, alternative Option I:

- Katunitsa village – 314 m north of the OHTL;
- Dobri dol village – 300 m north of the OHTL;
- resid. area Mityo Stanev, the town of Galabovo – 280 m north of the OHTL.

For Section 2, Options Ia and II:

- Obruchishte village – 360 m north;

For Section 3, chosen Option III:

- Golyam manastir village – 260 m north;
- Tamarino village – 260 m south;
- Bogorovo village – 360 m north;
- Troyanovo village – 290 m north;
- Krastina village – 170 m south.

For Section 3, alternative Option I:

- Orlov dol and Trankovo villages – 360 m north of the OHTL trace;
- Kamen vrah village – 250 m south of the OHTL;
- Krastina village – 170 m south of the OHTL.

These distances are the smallest as the distance from the foundations of the towers to the residential areas will be bigger, but at this stage the exact locations cannot be determined.

The maximum expected levels of noise in the closest to OHTL inhabited buildings in Bryast village (*for the chosen Option II of Section 1*) and Krastina village (*for the chosen Option III and alternative Option I of Section 3*) have values below 51 dB(A). For the other protected sites the maximum noise levels will be below 45 dB(A).

• *During operation*

During operation, the OHTLs are sources of noise, vibrations and electromagnetic field with frequency of 50 Hz, occurring during electricity transmission.

The use of the project facility is not associated with emission of noise above the permissible limits for urban environments.

Vibrations that may arise at certain meteorological conditions are neutralized with the installed dampers ("vibro silencers") and do not spread into the surrounding area, therefore their influence will not be considered.

The operation of the 400 kV OHTL is not associated with emission of ionizing, ultraviolet or other radiation.

Electric fields around power lines with voltage up to 400 kV are harmless to humans, regardless of the length of exposure. Precautions are necessary only when carrying out repair works under energized condition.

Magnetic fields around power lines with voltage up to 400 kV are harmless to humans, regardless of the length of exposure.

4.12. Health - hygienic aspects of the environment

Risk factors for population health during operation of the 400 kV high-voltage electricity transmission line from s/s "Plovdiv" 400 kV to s/s "Burgas" 400 kV with a break in s/s "Maritsa Iztok" 400 kV and a new power line from s/s "Maritsa Iztok" 400 kV to "Maritsa Iztok 3" are mainly the possible contamination of air with electromagnetic radiation, noise pollution and risks during thunderstorms, which in this case are not expected to be a significant negative factor because of the sufficient distance from populated areas.

The hygiene expert analysis proves that the construction of the trace in accordance with the requirements for this kind of equipment and when taking the necessary protective measures, will not lead to a significant change in the population health status and so the health risk can be predicted as low. This will be beneficial for the hygiene conditions of the environment and the living environment of the population.

The functioning of the abovementioned OHTL, when using modern, environmentally friendly construction techniques and on the other hand, in compliance with all legally adopted recommendations regarding the health of workers and population, is not expected to contribute to the worsening of the health status of the area residents along the entire OHTL nor of the workers during OHTL construction.

4.13. Hazardous substances

The construction and operation of the OHTL are not associated with the release of hazardous or toxic substances.

4.14. Impact on population and human health

Regarding the health of the population, no negative impacts are envisaged, and impacts on human health in terms of the working environment are expected to have strictly local and professional character, and require compliance with the basic rules for occupational safety of the workers on site.

Risky workplaces:

There is danger to personnel when performing peak inspections and repairs while climbing on the towers – risks of falling from towers, touching energized parts when there is no shutdown provided or the OHTL is energized by mistake, risk of voltage of atmospheric origin or induced voltages from neighboring OHTLs.

If operating the OHTL properly, it is not expected the health status of the population in the areas with relative proximity to the power line to be endangered.

If the legal requirements for healthy and safe working conditions during construction and repair works are observed strictly, no negative impact on the health of the workers on site is expected.

4.15. Risk of emergency situations

Possible disasters – consequences of earthquakes, floods, hurricane winds, snowdrifts, ice, icing

Earthquakes – Bulgaria falls in the Aegean seismic zone, which is a part of the Mediterranean seismic belt. Earthquakes in Bulgaria are of tectonic origin with more than 250 outbreaks, the majority of which are in South Bulgaria. The project area goes through seismic zones- VII, VIII and IX class of the macroseismic Medvedev-Sponheuer-Karnik scale (MSK-64).

There are no active landslides of earth and rock masses (landslides and collapses) which could endanger the safety of the trace.

Floods – there is no risk of floods.

Hurricane winds, snowdrifts, ice, icing

A risk of occurrence of emergency situations along the 400 kV OHTL are hurricane winds with speed of over 33 m/s. The likelihood of hurricanes along the new OHTL 400 kV is:

- once every 100 years for Section I in the area around Plovdiv;
- once every 50 years for Section I and II in the area around and after Dimitrovgrad;
- once every 20 years for Section III in the region of Elhovo;
- once every 25 years for Section III in the region of Kameno.

In accordance with the analysis of the climatic conditions on the trace, the new double 400 kV OHTL s/s "Maritsa Iztok" to s/s "Maritsa Iztok 3" should be designed along the entire route with the following parameters:

- Maximum air temperature 40° ;
- Minimum air temperature -30° ;
- Average annual air temperature 12.5° ;
- Maximum wind speed 35m/s;
- Wind speed at icing 17.5m/s;
- Thickness of icing 20mm.

Accidents

The site is not in danger of fire and explosion. Firefighting equipment is not foreseen. Accidents and incidents are possible if there is failure to comply with the requirements for safe handling and operation.

The risk of emergency situations during operation will be minimized with the regular technical servicing and maintenance of the facility.

4.17. Cumulative effect

The trace of the new 400 kV OHTL crosses, runs parallel or enters into existing energy corridors, therefore it is possible a cumulative effect to occur.

Cumulative noise impact will be local, close to the places where the new OHTL crosses existing OHTLs and in areas with OHTLs passing close to each other.

No cumulative impact on the background noise of the urban environment is expected.

Negative impact on buildings subject to intense noise protection is not expected either.

4.18. Significance of impacts (direct, indirect, secondary, cumulative, short, medium- and long-lasting, permanent and temporary, reversible, positive and negative) on the estimated components and factors

Impact on the climate and atmospheric air

Insignificant local pollution from dust and exhaust gases from construction machinery in certain sections of the route is expected during construction.

During the operation no impact is expected. There is no difference which of the route options (*chosen or alternative*) for the new 400 kV OHTL will be implemented.

Impact on waters

Water resources on the route of the OHTL will not be affected by the implementation of the project neither during the construction phase nor during the operational phase. The realization of neither of the options for route (*chosen or alternative*) is associated with deterioration of the quality and impact on the quantitative status of the water resources.

Impact on land and soils

The impact on land and soils will be direct and single, associated with the construction of the overhead transmission line - change of land use, change in ownership.

About 773 towers will be erected, for whose foundations approximately 150 m²/km area/land/ or a total of about 35 400 m² should be expropriated. In determining the sites for each tower, an easement zone of 0.5 to 1.0 meters was introduced, measured from the outside of the edge of the foundation.

Excavation works will be carried out for foundations of the towers (about 83484m³), of which 71 116 m³ will be used for backfilling and about 12368 m³ for landscaping around the towers. The excavated earth masses will be stored near the foundations and used for backfilling and landscaping around the very foundations. In case of rocky earth masses which cannot be used, they will be deposited on a territory agreed with the municipality.

The humus layer (approximately 10620 m³) will be removed before the start of the construction works, deposited separately from the other excavated earth and used properly.

Recovery and restoration of the land occupied by temporary roads and sites is foreseen after completion of the construction works.

No negative impact is expected during the operation of the power line.

Cumulative impact – taking away of % of lands from the agricultural and forest fund.

Impact on earth bowels, geological base and mineral diversity

No impact on the earth bowels, geological base and mineral diversity during the construction and operation of the facility is expected.

There are no expected changes in the geological base and mineral diversity at the stage of closing the site and reclamation. The realization of any of the route options (*chosen or alternative*) is not associated with negative effects on the earth bowels, geological base and mineral diversity.

Impact on the landscape

The impact is permanent. The main negative impact of overhead transmission lines is on the visible aesthetic environment (which is relative). Power lines cause visual impacts on the landscape. The exposure period is unlimited (during the entire operation). The main type

of landscape does not change.

During the operation of the OHTL there are no waste products. There is no migration of contaminants. Compliance with the relevant legal requirements for OHTL operation is necessary.

There is no risk for the occurrence of cumulative effects. The cumulative impact is on the visible aesthetic environment which is relative. There is no difference which of the trace options will be implemented (chosen or alternative) for the new 400 kV OHTL.

Impact on biodiversity and its components

Flora

During construction – direct - the main impact on vegetation is largely due to the removal of single trees in the easement area and destruction of vegetation in the places of tower foundations.

Temporary trampling and destruction of vegetation within the temporary sites and roads is expected.

During operation - periodically - maintaining the vegetation at a certain height in the easement area.

During the operation of the power line, a change in the physiological development of the vegetation is not expected.

Cumulative impact – reduction of the areas with high-stem vegetation and temporary destruction of natural habitats.

Fauna

The technological process of the overhead line is carrying electricity. The site is a source of electromagnetic field during its transmission. The distance of the conductors to the ground allows safe passage of humans and animals under the OHTL for an unlimited time.

Main negative impact on fauna will take place during the actual construction of the OHTL because of the entry of equipment and people - the impact will be temporary. Disturbance of individuals is possible from the movement and operation of transport and construction equipment and people. Based on the results of the analysis of noise in the EIA Report and on our experience from other projects, a buffer having width of 200 meters from the boundaries of the easement area is adopted as a maximum range of this impact.

Temporary destruction of natural habitats and habitats of species at the site of construction is possible (tower foundations, clearings in forest habitats, installation sites, temporary roads, temporary and permanent depots).

The main impact during the operation of the OHTL 400 kV is mortality of birds from collision with the power line. Most often birds collide with so called ground wire - unstressed wire passing over the tense one, protecting the power line from lightnings. Because they are thinner, with a diameter of 0.9 - 1.3 cm, very frequently in bad weather birds do not notice them (De La Zerda and Rosselli 2003, Heck 2005, Hunting 2002, Van Rooyen 2003). Collision with wires is observed in places where the route of the power line crosses the flight path of birds - linear landscape objects as the river valleys, gullies, strips of forest plantations or clearings in them, basins or other areas with a high concentration of birds (Hunting 2002, URS Corporation 2005). Collision risk is smaller if the individual lines are parallel, close to

each other (Mannville 2005, McCann 2005). Mortality from collision has a significant impact on the following taxa: *Pelicanidae*, *Ciconidae*, *Galliformes*, *Rallidae*, *Gruidae*, *Otidae*, *Charadriidae*, *Scolopacidae*, *Strigiformes* (Council of Europe 2004, Haas et al. 2003). The impact can be significant, therefore, measures are needed to reduce it.

Cumulative impact – temporary fragmentation of individual habitats.

Impact on natural sites

The impact is direct and permanent.

Cumulative impact is not expected.

Natural sites are situated at a certain distance from the route of the power line.

The route only crosses Natural landmark “Fossil fragments”.

Impact on cultural and historical heritage

During construction and operation of the facility, no impact on the cultural and historical heritage is expected.

Impact from different types of waste and their locations

The operation of this type of sites is not associated with waste generation. Waste will be generated only in the period of construction - installation works or repairs. These facilities do not emit hazardous waste during operation and do not use toxic or hazardous substances. The expected impact is temporary and short (*only in the construction phase and during repairs*) and localized.

Impact on people and their health

When properly exploiting the OHTL, it is not expected threatening of the health of the population from the region in relative proximity to the OHTL site. When complying with the regulatory requirements for safe working conditions, negative impact on the health of workers on site is not expected.

The realization of any of the route options (chosen or alternative) for the new OHTL is not associated with significant negative impact on people and their health.

Impact from risk energy sources – noise, vibrations, radiation.

During OHTL construction, impact from risk energy sources is not expected.

During operation

During operation, the overhead transmission lines are sources of noise, vibration and electromagnetic field with a frequency of 50 Hz, arising from the transmission of electrical energy.

- the operation of the 400 kV OHTL is not associated with the emission of noise over the limit values for the urban environment;
- electric fields around power lines with voltage up to 400 kV are harmless to humans, regardless of the length of exposure. Precautions are necessary only when carrying out repair works on energized facilities.
- magnetic fields around power lines with voltage up to 400 kV are harmless to humans, regardless of the length of exposure.

Table 4.17 Significance of impacts during operation

| No. | Components | Impact |
|-----|------------|--------|
|-----|------------|--------|

| No. | Components | Impact | | | | | | | | | | |
|-----|----------------------------------|--------|----------|-----------|------------|--------------|---------------|-------------|-----------|-----------|----------|----------|
| | | direct | indirect | secondary | cumulative | short - term | middle - term | long - term | permanent | temporary | positive | negative |
| 1. | Atmospheric air * | | | | | ◆ | | | | ◆ | | ◆ |
| 2. | Surface water | | | | | | | | | | | |
| 3. | Underground water | | | | | | | | | | | |
| 4. | Land and soil | ◆ | | | | | | ◆ | | | | ◆ |
| 5. | Geological base and earth bowels | | | | | | | | | | | |
| 6. | Landscape | ◆ | | | | | | | ◆ | | | |
| 7. | Natural sites | ◆ | ◆ | | | | | | ◆ | | | |
| 8. | Mineral diversity | | | | | | | | | | | |
| 9. | Biodiversity | ◆ | ◆ | | ◆ | ◆ | | ◆ | | ◆ | | ◆ |
| 10. | Cultural heritage | | | | | | | | | | | |
| 11. | Waste | ◆ | | | | ◆ | | | | ◆ | | |
| 12. | Harmful physical factors | ◆ | | | ◆ | | | ◆ | ◆ | | | |
| 13. | Population health | | ◆ | | | ◆ | | | | | | |
| 14. | Workers health** | ◆ | | | | ◆ | | | | ◆ | | ◆ |

* impact on air quality is of a local nature and only in the construction phase

** when there is non-compliance with safe working conditions

6. Description of the measures envisaged to prevent, reduce or, where possible, remove any significant harmful environmental impacts, and a plan for implementation of these measures

The following measures will be taken to reduce the adverse impacts on the individual components of the environment, resulting from the project implementation:

Table 6. "Plan for measures implementation" (in accordance with the Ordinance on the conditions and procedures for EIA, SG No. 3 of 2006 - Annex 2 to Art. 11, par. 1, item 4).

| No. | Measures | Period / implementation phase | Result |
|--|--|-------------------------------|--|
| Population and human health | | | |
| Limitation of harmful effects of physical factors on workers and residents on the territory of the power line | | | |
| 1. | Determining of easement areas in accordance with the requirements of Ordinance No. 16 / 09.06.2004 on the easements of energy facilities | Construction phase | Significant reduction and dispersion of electromagnetic radiation, reduction of the noise loading of the environment and prevention of emergency situations. |
| 2. | Compliance with technological requirements during operation with corresponding to the legal requirements emissions of noise | Operation | Significant reduction of the harmful physical factors on the health of people, temporarily residing near the transmission |

| No. | Measures | Period / implementation phase | Result |
|------------------------|--|-------------------------------------|---|
| | and electromagnetic radiation, and conducting regular technical monitoring | | line. |
| 3. | Use of personal protective equipment and compliance with all requirements for occupational safety and hygiene. | During construction and maintenance | Health protection of the workers. |
| 4. | Outsiders not to be allowed on site. | During construction | Health protection of the workers and the population. |
| 5 | When working on deenergized power lines near power lines under tension, to ensure compliance with the requirements of the Rules on technical safety, as the area of work is earthed. Strictly to observe the procedures for installation and changing of the transmission earth rods. | Construction phase / Repair works | Life and health protection of the workers and the population. |
| 6 | Wires of vineyards or other agricultural crops to be placed perpendicularly to the high-voltage power lines, passing above them. When working with cars, trucks and machinery under power lines in 400 kV switchyards and above, the metal parts should be earthed. Stops of public transportation to be established no closer than 20 m from the outermost phase of the high-voltage power lines to avoid stress to people. | Operation | Life and health protection of the population. |
| 7 | The parking of vehicles under power lines with rated voltage of 400 kV and above closer than 20 m from the outermost phase, not to be allowed. | Operation | Avoiding incidents from spontaneous combustion of fuel. |
| 8 | To measure the intensity of the electric field in order to determine whether in certain areas the safe limit of 15 kV/m is exceeded. | When carrying out repair works | Life and health protection of the workers and the population. |
| Atmospheric air | | | |

| No. | Measures | Period / implementation phase | Result |
|---|---|-----------------------------------|---|
| 9 | Avoiding idle running of construction equipment. | Construction phase | Reducing harmful emissions from exhaust gases of internal combustion engines. |
| 10 | Use of industrial equipment covering European standards. | Construction phase | Reducing harmful emissions from exhaust gases of internal combustion engines. |
| 11 | Grassing the areas around the foundations of the towers. | After construction phase | Minimizing dust emissions and secondary air pollution. |
| Surface and underground waters | | | |
| 12 | The foundations of the towers not to be situated in close proximity to surface water sources. | Construction phase | Protection of surface water bodies. |
| 13 | In emergency situations with construction equipment like spills of fuel, oils, hydraulic fluids etc. immediately to clean the affected area. | Construction phase / Repair works | Protection of surface and underground waters and the sanitary protection zones through which the OHTL passes. |
| 14. | Where necessary, during construction to be used sulphate resistant cements and insulation materials (coatings), resistant to the respective aggression. | Design/ Construction phase | Protection of underground waters. |
| Geological base and mineral diversity, cultural heritage | | | |
| 15. | Strict compliance with the provisions on the method of foundation at different geological conditions. | Design/ Construction phase | Protection of the geological base. |
| 16. | If unique mineral formations or movable cultural monuments are discovered, within 7 days to notify the Minister of Economy, Energy and Tourism, and / or the Minister of Culture. | Construction phase | Protection of cultural values and mineral resources. |
| 17. | When crossing Natural landmark "Fossil fragments", the excavation works to be carried out under the supervision of an archaeologist. | Construction phase | Preservation of archaeological monuments invisible on the surface. |
| Land and soil, landscape | | | |
| 18. | Separate removal and storage of humus, and use as intended. | Construction phase | Minimal damage to soil. |
| 19 | Maximum use of existing roads | Construction phase | Minimal damage to soil. |

| No. | Measures | Period / implementation phase | Result |
|---------------------------------------|--|--|--|
| | for movement of construction and maintenance machinery. | | |
| 20 | Designation of temporary sites and roads outside protected areas. | Construction phase | Minimal damage to soil. |
| 21 | Storage of excavated earth masses near the foundations and their use for backfilling and landscaping around the foundations. | Construction phase | Minimal damage to soil. |
| 22 | Restoration of all damaged areas during the extension of conductors - if necessary by ploughing and eventually - grassing. | Construction phase / Parallel to site construction | Soil protection. |
| 23 | Restoration of the areas given for temporary use. The land for temporary roads and sites to be recultivated and restored after completion of construction works. | Construction phase / Parallel to site construction | Soil and landscape protection. |
| 24 | After tower dismantling, the damaged areas to be restored. | Operation / Repair works | Soil protection. |
| 25 | To meet the requirements for rational use of land, better organization of construction and minimal damage to the existing landscape. | Construction phase / Parallel to site construction | Landscape protection. |
| 26 | Strict observance of work hygiene, timely cleaning of sections contaminated with domestic and construction waste. | Construction phase / Parallel to site construction | Soil and landscape protection. |
| Biodiversity and natural sites | | | |
| 27 | The construction works to be executed outside the birds mating period (May – July) in the sections: - from 670 m before Benchmark 4 to 250 m after it, from 5600 m before Benchmark 6 to 5120 m before it, from 4220 m before Benchmark 6 to 3625 m before it, from 575 m after Benchmark 7 to 855 m after it, from 295 m after Benchmark 12 to 810 m after it, | Construction phase | Reduction of the risk of mortality for small bird species, including those from Annex 3 to the Biodiversity Act, or the risk of destroying their eggs. |

| No. | Measures | Period / implementation phase | Result |
|-----|--|-------------------------------------|---|
| | <p>from 470 m after Benchmark 14 to 760 m after it (Section 1 Option I);</p> <p>- from 60 m after Benchmark 3 to 290 m after Benchmark 4, from 305 m before Benchmark 10 to 230 m before it (Section 2 Option);</p> <p>- from 385 m before Benchmark 4 to 280 m before it, from 4090 m after Benchmark 13 to 4655 m after it, from 3600 m after Benchmark 15 to 1000 m forward, and from Benchmark 24 (Section 3 Option) till the end of the trace.</p> | | |
| 28 | <p>The facilities preventing the birds from landing on the towers to be of a type which does not lead to injury or death of birds.</p> | Construction phase | Protection of birds, including those from Annex 3 to the Biodiversity Act, from injury. |
| 29. | <p>Along one of the ground wires to be installed so called “protection (contact) plates” (diverters), rotating spheres or spirals made of phosphorescent material in the sections:</p> <p>- from 670 m before Benchmark 4 to 250 m after it, from 5600 m before Benchmark 6 to 5120 m before it, from 4220 m before Benchmark 6 to 3625 m before it, from 575 m after Benchmark 7 to 855 m after it, from 295 m after Benchmark 12 to 810 m after it, from 470 m after Benchmark 14 to 760 m after it (Section 1 Option I);</p> <p>- from 60 m after Benchmark 3 to 290 m after Benchmark 4, from 305 m before Benchmark 10 to 230 m before it (Section 2 Option);</p> | Construction phase | Protecting the birds, including those from Annex 3 to the Biodiversity Act, from colliding with the OHTL. |

| No. | Measures | Period / implementation phase | Result |
|--------------|--|--|---|
| | - from 385 m before Benchmark 4 to 280 m before it, from 4090 m after Benchmark 13 to 4655 m after it (Section 3 Option). | | |
| 30 | Observance of working hours and minimum noise. | Construction phase / during repair works | Fauna protection, including the species from Annex 3 to the Biodiversity Act. |
| 31 | Observance of the sizes of the easement areas and sparing removal of vegetation. | Construction phase | Preserving the vegetation. |
| 32 | Branches and leaves accumulated during clearing and maintenance of the easement areas, to be disposed of on locations approved by the municipalities | Construction phase and operation | Reducing the risk of fires in forests and shrublands, and reduction of ruderalization. |
| 33 | Grassing of damaged areas and planting of low-stemmed vegetation to be done. The grassing to be with mixtures of local species. | After the end of the construction works | Preservation of vegetation. |
| 34 | During the design stage, when the exact locations of the tower foundations are determined, specialists from the National Museum of Natural History with the Bulgarian Academy of Sciences should be provided, in order to carry out preliminary research on "Fossil fragments". Should fossils be found, the tower foundations to be designed on different, appropriate locations. | Design phase | Protection of natural landmarks / sites. |
| 35 | Strict observance of work hygiene, timely cleaning of sections contaminated with domestic and construction waste. | Construction phase / repair works | Preventing the gathering of birds and other animals seeking food on site, during the construction phase and repair works. |
| Waste | | | |
| 36 | A plan for construction waste management to be prepared. | Construction phase / detailed | Preventing pollution with construction waste of the |

| No. | Measures | Period / implementation phase | Result |
|-----|--|-------------------------------|---|
| | | design phase | territories through which the OHTL passes. |
| 37 | Household and construction waste to be collected separately in movable containers and periodically transported and disposed of by using the existing system for treatment of waste in the municipalities along the OHTL. | Construction phase | Avoiding mixing of different waste types. |
| 38 | When replacing chain insulators, conductors and towers, the dismantled parts and the destroyed concrete to be transported to a suitable for the purpose place. | Operation / repair works | Avoiding pollution from construction waste. |

7. Consultations carried out to determine the scope of the EIA and provided written statements

The conducted consultations with specialized agencies and representatives of the affected community for scoping of the EIA and their provided written statements, opinions and recommendations are described in detail in the EIA Report

8. Conclusions in accordance with the requirements of Article 83, paragraph 3

The Environmental Impact Assessment Report (EIA) on investment proposal: Construction of a new 400 kV power line from s/s "Plovdiv" 400 kV to s/s "Burgas" 400 kV with a break in s/s "Maritsa Iztok" 400 kV, and a new power line from s/s "Maritsa Iztok" 400 kV to the switchyard of TPP "Maritsa Iztok 3" has been prepared in accordance with the Environmental Protection Act and the Ordinance on the conditions and procedures for EIA, and in connection with Decision of the MOEW No. - 293/21.01.2013 on the need for completing an EIA.

The Environmental Impact Assessment Report (EIA) covers all phases of the implementation of the abovementioned investment project - construction, operation, and backfilling and reclamation. Alternative options have also been considered in relation to the terrain, as well as the "zero alternative", i.e. the consequences of non-realization of the investment proposal. Equivalent description, analysis and comparison of the alternatives have been made in the EIA Report. Conclusions and reasons for the choice of route are presented, taking into account the impact on the environment, including the "zero alternative". Recommendations have been made how to reduce the impact and solve any environmental problems during the implementation of the project, ensuring the protection of human health, the environment and the sustainable development of the region.

The provided Report on the compatibility with the subject and goals of the preservation of protected sites, the analyses and assessments made in it also confirm the lack of significant impact on the subject and goals of protected sites and confirm the overall assessment of the EIA Report.

All submitted statements and the reasons for accepting or not accepting any remarks, are listed in the EIA Report.

The content of the EIA Report complies with the requirements stated in Letter of the MOEW Ref. No. -293 / 10.04.2013.