

## **'Koskina Lakka' Wind Farm (7.65 MW) located in Kimis-Aliveriou Municipality, Regional Unit of Evia, Greece**

### **Non-Technical Summary**

#### **Introduction**

The Koskina Lakka wind farm will be constructed and operated by **AIOLIKI ANATOLIKIS ELLADOS O.E. Company**, which is owned subsidiary of Terna Energy S.A. and is located in Kimis-Aliveriou Municipality of the Regional Unit of Evia, Region of Central Greece and under the Decentralized Administration of Thessaly and Central Greece.

The project refers to the development, construction and operation of one wind farm with installed nominal capacity of 8.4 MW (max returned capacity of 7.65 MW), consisting of total 2 wind turbines, along with the accompanying works.

The purpose of the proposed project is to use the high wind potential of the area for the generation of electricity and then to sell the produced energy to the electricity operator.

The project is located within 'Limni Dystos' area (GR 2420008), which has been designated as a Special Protection Area (SPA) of the European Ecological Network Natura 2000, in accordance with the Birds Directive 2009/147/EC. Consequently a Specific Ecological Evaluation Study has been elaborated by taking into account both National and European Legislation related to the appropriate assessment according to article 6 of the Habitats Directive (92/43/EC).

The Environmental Impact Assessment Study has been elaborated by taking into account the national legislation and particularly Article 4, Law 4014/2011 (OGG 209A/21.09.2011). The approval procedure of the EIAS will also follow all the public consultation procedures according to European and National legislation.

#### **Environmental permitting categorization**

With reference to Environmental Permitting Categorization, the project falls under Group 10, item 1: Renewable energy sources/Windfarms, Subcategory A2:  $5 < P < 60$  MW και  $L < 20$  km, whereby P: wind power capacity, L: length of high voltage transmission line ( $\geq 150$  kV). Therefore the ESIA is submitted for approval to the Decentralized Administration of Thessaly and Central Greece.

#### **Proposed Project**

The Environmentally approved Project is as follows:

- 2 wind turbines (4.2 MW of wind power capacity each), totaling 8.4 MW (max returned capacity of 7.65 MW) wind power.

- Road works of **4.478.29 m** in length for both new internal access roads and improvements of existing roads.
- Control Room (**256 m<sup>2</sup>**).
- Underground medium voltage transmission line of **10.800 m** in length.
- A **new Step-up Transmission Substation** 150/20KV (EVIA 1- in Paliovrissi), in a plot of 12.107 m<sup>2</sup>, where a building of 250 m<sup>2</sup> will be constructed. The Substation will serve 9 wind farms in the wider project area, one of which is 'Koskina Lakka'.
- Underground transmission line from the wind turbines to the Control Room of **1.500,0 m** in length.

### **Project compatibility with spatial and urban planning commitments**

The project and its accompanying works fulfill the criteria, as identified in the Special Framework for Spatial Planning and Sustainable Development for Renewable Energy Sources (OGG 2464B/03.12.2008, Articles 5 and 6).

### **Environmental impact assessment**

The project is not likely to have any impacts on the area's **climate or bioclimatic conditions**.

During construction, the project is likely to have moderate impacts of local extent and partial reversibility on **soil relief and morphology**. More specifically, excavations for the creation of new and improvement of existing access roads, the foundation of wind turbines and construction of the Step-up Transmission Substation 150/20KV (EVIA 1) are estimated to be approximately 74.504,60 m<sup>3</sup> and backfilling approximately 74.274,36 m<sup>3</sup>, therefore producing an excess of approximately 230,24 m<sup>3</sup>. The project's total land take during construction is approximately 86 stremma<sup>1</sup> (including approximately 12 stremma for the Step-up Transmission Substation 150/20KV (EVIA 1)). The project is not likely to have impacts on soil relief and morphology during operation. In any case, construction sites will be removed upon completion of construction phase and, to the extent possible, the project area will be rehabilitated to its initial status with reference to soil morphology.

The project is likely to have minor impacts on **landscape and aesthetic environment** during construction, mainly due to construction sites, however these impacts are considered short-term, of local extent and partial reversibility, as construction sites will be removed upon completion of the construction phase and on the condition that planting works will take place. With reference to likely impacts during operation, the nearest settlements are Prasino (1.5km), Boufalo (3km), Argiro (3.5km), Distos (4km),

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<sup>1</sup> 1 stremma = 1000 m<sup>2</sup>

Koutoumoulas (4.7km) and archaeological site Distos (1km) and therefore due to their distance from the wind turbines, any likely visual impacts are considered minor.

During construction, the project is likely to have minor impact on **water bodies** and negligible impact during operation.

With reference to **vegetation**, the project is likely to have minor impacts on 5 out of 8 vegetation types in the project area. Maximum land take is on Sclerophyllous vegetation and Olive groves which have a common presence in the broad area. The project is not expected to have an impact on any sensitive flora species. Impacts are partially reversible upon implementation of proposed mitigation measures and long-term. Furthermore, to the extent possible, the project area will be rehabilitated to its initial status with reference to vegetation.

With reference to **avifauna**, there are two designation species for SPA GR2420008, *Buteo rufinus* and *Aythya nyroca*; only the former was identified during field works in the project area. Overall any likely impacts (noise or light disturbances) on avifauna due to project construction and operation are not considered significant; the project is not expected to negatively affect the degree of conservation of birds by taking into account the implementation of the proposed mitigation measures. Therefore the Project is not expected to affect the integrity and the conservation objectives of the above mentioned Natura 2000 area, during the construction and operation phases.

With reference to other **fauna**, the project is expected to have moderate impacts of local extent and short duration during construction, mainly due to excavation works; however the habitats of amphibians, reptiles and mammals are not expected to be significantly affected.

The project is not expected to have any significant likely impacts on existing **land uses**, as its permanent land take is considered small scale; therefore impacts are estimated as minor, partially reversible upon implementation of proposed mitigation measures and long-term.

The project is not expected to have any significant likely impacts on the area's **built environment**, as it is situated far from existing settlements and man-made activities.

The project is not situated within designated archaeological sites and therefore no impacts are expected on the area's **historical and cultural environment** during construction or operation. However, prior to construction, the relevant archaeological bodies will be contacted so as to ensure monitoring of works. Should any archaeological finds occur, construction shall cease until completion of excavation works, in accordance with existing legislation.

The project is expected to have positive impacts on the area's **social and economic environment**, as it will create job opportunities during construction and operation. Furthermore, as per existing legislation, the Project is expected to produce 52.920 €, most of which will be distributed to Tamineon and Distion Municipal Entities for infrastructure, environment, culture and tourism development projects.

The Project is not expected to have any impacts on **human health**, as construction and operation measures are in place to ensure workers' and public safety. The underground medium voltage transmission line only induces magnetic fields, which are minimized and are practically zero within a few meters distance. In any case, the underground medium voltage transmission line and the Step-up Transmission Substation 150/20KV (EVIA 1) will be constructed as per the provisions of relevant legislation, so as to ensure public safety and protection of human health.

The Project is not expected to have any impacts on the area's public **infrastructures**, with the exception of road networks where impacts are expected to be minor, reversible and short-term (during construction).

Any likely impacts on the **atmospheric environment** due to construction works are expected to be minor upon implementation of proposed mitigation measures, of local extent and short-term. Positive impacts on the atmospheric environment are expected during project operation as the production of Energy from wind power has significant benefits on the environment, due to the avoidance of burning fossil fuels which produce greenhouse gases. More specifically, the production of equivalent energy (18GWh annually) from fossil fuels (lignite) would result in atmospheric emissions as follows: 21.600 t CO<sub>2</sub>, 149,4 t SO<sub>2</sub>, 30,6 t NO<sub>x</sub>, 12,6 t PM. Furthermore, the annual benefit from reduction of CO<sub>2</sub> emissions due to project operation is expected to be approximately 648.000€.

The project is expected to have minor impacts on the **acoustic environment**, upon implementation of proposed mitigation measures, of local extent, reversible and short-term. These impacts are due to construction vehicles and machinery as well as operation of wind turbines, but due to the fact that the nearest settlement (Prasino) is approximately 1.47 km away from the nearest turbine, they are expected to be minor.

#### **Avifauna monitoring programme**

The monitoring programme will investigate the Project's likely impacts on avifauna, emphasizing on impacts from bird strikes and nuisances for birds of prey. In order to ensure environmental protection of SPA GR2420008 'Limni Dystos' during project construction and operation, a two-year monitoring programme is proposed, focusing on the most critical issues, as identified in the Specific Ecological Assessment Study (SEAS).