

# **“Pirgari Ntardiza” Wind Farm (6.3 MW) located in Karystos Municipality, Regional Unit of Evia, Greece**

## **Non-Technical Summary**

### **Introduction**

The Pirgari-Ntardiza wind farm will be constructed and operated by **Eoliki Marmariou Evias O.E. Company**, which is owned subsidiary of Terna Energy S.A. and is located in Karystos 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 a wind farm with installed capacity of 6.3 MW total, consisting of seven (7) wind turbines 0.9 MW each, 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 not situated** within any designated area of the European Ecological Network Natura 2000.

The Environmental Impact Assessment Study for the modification of Environmental Terms of the project has been elaborated by taking into account the national legislation and particularly Article 6, Law 4014/2011 (OGG 209A/21.09.2011). The approval procedure of the EIA has also followed 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).

### **Proposed Project**

The wind farms' proposed main technical characteristics and their accompanying works are the following:

- Installation of 7 wind turbines, with a total nominal installed power of 6.3 MW **and an installed wind power capacity of 6.3MW.**
- Control room (**247 m<sup>2</sup>**)

- Road works of **5.861,74 m** in length (both access roads and internal roads) of which 2.399,55 m are improvements of existing roads and 3.462,19 m are new roads.
- Underground medium voltage transmission line of **14.554,9 m** in length, from the control room to the Step-up Transmission Substation 150/20KV "EVIA 5" which is located nearby "Stoupei" settlement ("EVIA 5" Step-up Transmission Substation 150/20KV has already been environmentally permitted from another wind farm project);

### **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 has all the legal licenses required. In the environmental permitting of the project, the process of disclosure of environmental information and public participation in environment protection was followed (publicizing the study and the public consultation) to inform all interested parties and to submit any objections.

In order to minimize impacts in the natural environment of the area, the Forest Service will approve studies for restoration of the disturbed by the construction of the project areas. The restoration of the disturbed areas will start after the completion of the construction.

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**. The project is not likely to have impacts on soil relief and morphology during operation.

The project is likely to have minor impacts on **landscape and aesthetic environment** during construction, however these impacts are considered short-term, of local extent and partial reversible, 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 settlement with visual contact to the wind turbines is Giannitsi (514 m) and therefore due to its efficient 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 vegetation types in the project area. Maximum land take is on scrub vegetation as well as pastures and sparsely ligneous vegetated areas which have a common presence in the wider area. The project is not expected to have an impact on any sensitive flora species.

With reference to **avifauna**, the project is located in a considerable distance (approximately 5km) from SPA GR2420012, so it is not expected to affect its functions. The project is not expected to negatively affect the degree of conservation of birds. The type of installed wind turbines incorporates the latest technologies and the design of the project adopts an underground interconnection network as a whole, with a positive impact on the environment and the birdlife.

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. It is worth noting that the WF roads and plateaus are not closed off by fences and that the operation of the WTG does not affected by any livestock or agricultural activities in the area (grazing, beekeeping, etc.) and is in line with all ecological activities. 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. 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. It has direct economic benefits to local communities from compensation measures: 3% of the turnover of Eoliki Marmariou Evias O.E. Company goes back to the local community and the Municipality of Karystos.

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. Furthermore, it 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 (roads, wind turbines' installation, materials transport) 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 due to the avoidance of burning fossil fuels which produce greenhouse gases. More specifically, the production of equivalent energy (**22,75 GWh annually**) from fossil fuels (lignite) would result in atmospheric emissions as follows: **19.337,5 t CO<sub>2</sub>, 352,6 t SO<sub>2</sub>, 27,3 t NO<sub>x</sub>, 18,2 t PM.**

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. During the operation phase, the impacts on the acoustic environment are due to the operation of wind turbines and are expected to be minor due to the fact that the nearest settlement (Giannitsi) is approximately 0.6 km away from the nearest turbine, the noise levels were estimated to be within the allowable limit values.

#### **Investment positive impact**

The Pirgari Ntardiza investment exploits an inexhaustible natural resource without burdening the environment as it is not a source of pollution and does not generate waste. It also increases the energy autonomy of the project's broader area and participates in the reduction of the country's energy deficit. It has a positive impact on a national scale as it contributes to saving fuel and avoiding the use of other solid, liquid or gaseous fuels that would otherwise be needed to produce the corresponding amount of electricity that would also produce gaseous pollutants with negative effects on the environment (greenhouse effect, ozone depletion, acid rain, etc.).