44MW Wind Project in Greece

Rachoula I, Rachoula II, Rachoula III Wind Farms - Greece

NON-TECHNICAL SUMMARY

"Rachoula-Paschalies" WFs / Non Technical Summary

The Rachoula Wind Farms (WFs) are run by Aioliki Rachoulas Dervenochorion S.A., which is 100% owned subsidiary of TERNA ENERGY S.A. and are located in Dervenochoria, Municipality of Tanagra, of the Regional Unity of Viotia (Region of Central Greece) and under the Decentralized Administration of Thessaly and Central Greece.

The Project refers to the development, construction and operation of three Wind Farms (WF): Rachoula I, Rachoula II and Rachoula III of 30MW, 8MW and 6MW installed capacity respectively (totally 44 MW).

- **Rachoula I:** The first stage of the Rachoula WF started with 12 Wind Turbine Generators (WTGs), NORDEX N90 (pillar height of 80 m and rotor diameter of 90 m) with a total power of 30MW. Permitting procedures started in 2004 and it was fully operational in 2012.

- **Rachoula II:** The addition of 8MW (4 WTGs), VESTAS V90 (pillar height of 80 m and rotor diameter of 90 m) reached the full potential of the WF to 38MW. This stage was fully operational in 2014.

- **Rachoula III:** This is the current stage of the project. With the addition of 3 new WTGs (6MW), VESTAS V100 (pillar height of 80 m and rotor diameter of 100 m), with a power of 2,2 MW each, with a total installed power limit of 6 MW. It is in full operation from 2018.

The site location is demonstrated in Figure1-1 below.

The W/Fs is located in a public, forest area, at a distance of 1.5 km from the settlement of Pyli, at an altitude of 600-700 m, with a site area of 1.168.858 sq.m. and includes, apart from the WTGs, 86.60m2 Control Center (CC), Underground Network of Medium Voltage Connection of the WTGs to each other and to the CC, with a total length of approx. 10.5 Km, Underground Medium Voltage Connection Line with the 20 / 150kV Voltage Substation in "SKURTA" location, total length of approx 8,3 Km, access roads, including existing road improvement, total length of approx. 5.3 Km and new roads, with a total length of approx. 4.3 Km, other necessary constructions and installations (central control & telematics system etc.).

The 20/150 KV voltage rise Substation at Skourta is adjacent to the existing high voltage power line (150 KV) of PPC "SCHIMATARI - ROUF" and is an accompanying project of the wind farm at "Krekeza - Mongloulios".

Figure 1: Rachoula W/F Project in Dervenochoria

The wind turbines located along the ridges in the area of five polygons are spaced apart to avoid aerodynamic shading and wind turbulence and to optimize their energy efficiency by reducing their wear and increasing the life span of the installation. 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.

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 Rachoula WF is not located in a NATURA 2000 area or any other nationally or internationally protected area. In general the biodiversity of the Dervenochoria region is not considered to be sensitive and for this reason it was not found necessary to conduct any special flora and fauna monitoring studies during the EIA process. The project does not have a negative impact on the cultural environment of the wider study area and both its design and its installation is carried out according to the suggestions and remarks of the relevant Archaeological Services. Specifically, prior to the start of the construction of the project, the relevant Archaeological Services were notified in writing so that their representatives could

be present during the works. In the case of chance findings, works will be immediately interrupted in order to carry out a rescue excavation.

Development of the Project has not required any displacement of the people or business and no physical or economical resettlement has taken or will need to take place. The land for the Project purposes was considered to be public property as woodland area and it was acquired via an intervention and installation permit from the relevant Forestry authorities.

The project is fully compliant with the national environmental regulations and the relevant legal framework about WFs (Special Framework for Spatial Planning and Sustainable Development for RES). It 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 has approved studies for restoration of the disturbed by the construction of the project areas, which started after the completion of the construction.

According to the data provided by RAE (list of 11/04/2018) the number of typical wind turbines with a production license for the Municipal Unit of Dervenohoria is **114.27,** which includes the new additions to the Rachoula Wind Farm. Therefore, the threshold of **146.57** typical wind turbines which is the capacity for this Municipal Unit is not exceeded. Regarding the WFs that have obtained a production license in the same or in neighbouring municipalities, it is estimated that the distance from the project under consideration is satisfactory in order to consider that there is a potential for synergistic or cumulative impacts in one of the natural and man-made areas environment.

The purpose of the proposed project is to use the wind potential of the area for the generation of electricity and then to sell the produced energy to the electricity operator (LAGIE SA).
The Rachoula WF 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.).

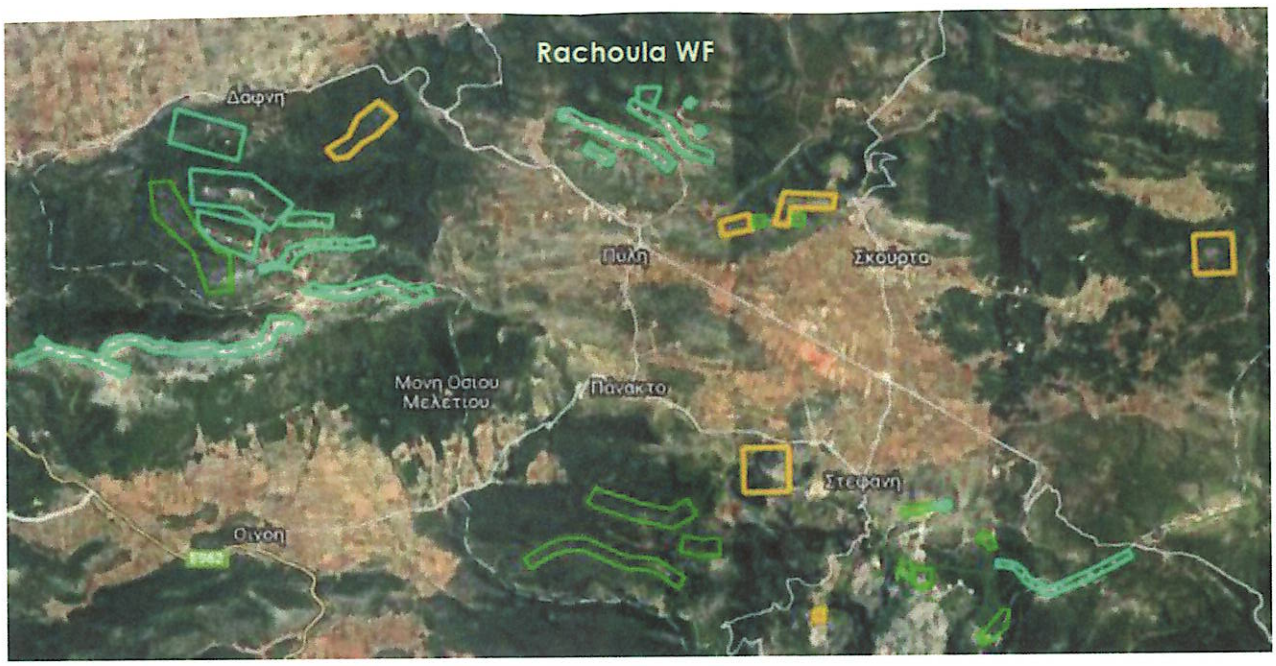

Figure 2: W/Fs in Dervenochoria region indicated with green are the W/F holding production licence, with teal are the W/F holding operational licence & with yellow new locations for W/F under evaluation are indicated[1])

In conclusion, the project will lead to the following:

a) Replacing conventional sources of energy with RES and reducing greenhouse gas emissions and climate change.

b) Increasing the percentage of use of RES and aiding in reaching the national goal of 20% by year 2020.

c) Direct economic benefits to local communities from compensation measures: 3% of the turnover of Aioliki Rachoulas Dervenochorion S.A. goes back to the local community and the Municipality of Tanagra.

d) Indirect economic benefits of boosting employment and local economic activity.

Geospatial Map, RAE, http://www.rae.gr/geo/?lang=EN

e) Strengthening decentralized growth potential, ensuring safe and "clean" energy autonomy and sufficiency.

f) Strengthening the non - dependence on imported fuels as well as polluting non-renewable natural resources.