TERNA ENERGY
GEK TERNA GROUP

VIOTIA
DERVENOHORIA
WINDFARM PROJECTS

CENTRAL GREECE, GREECE

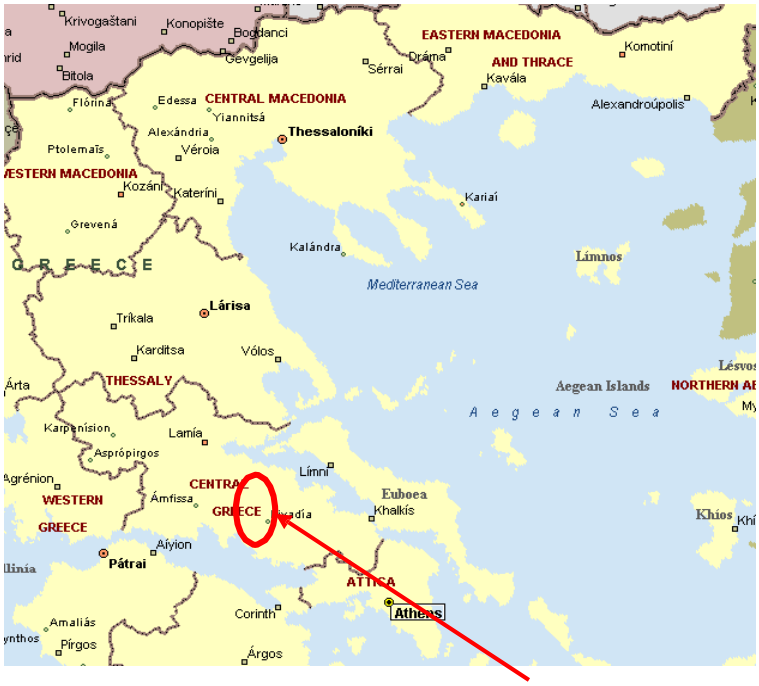
NON-TECHNICAL SUMMARY

July 2016

CONTENTS

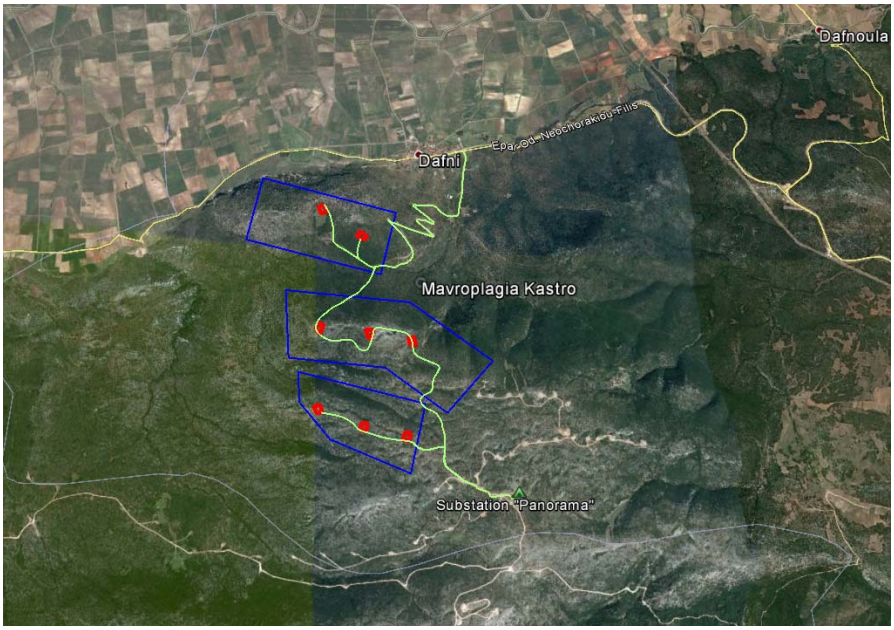
1. Introduction

“DERVENOHORIA” Projects consist of three wind farms (W/Fs) of 48.6 MW total capacity, located in the region of Central Greece in the wider Tanagra municipality area of the former Viotia prefecture.

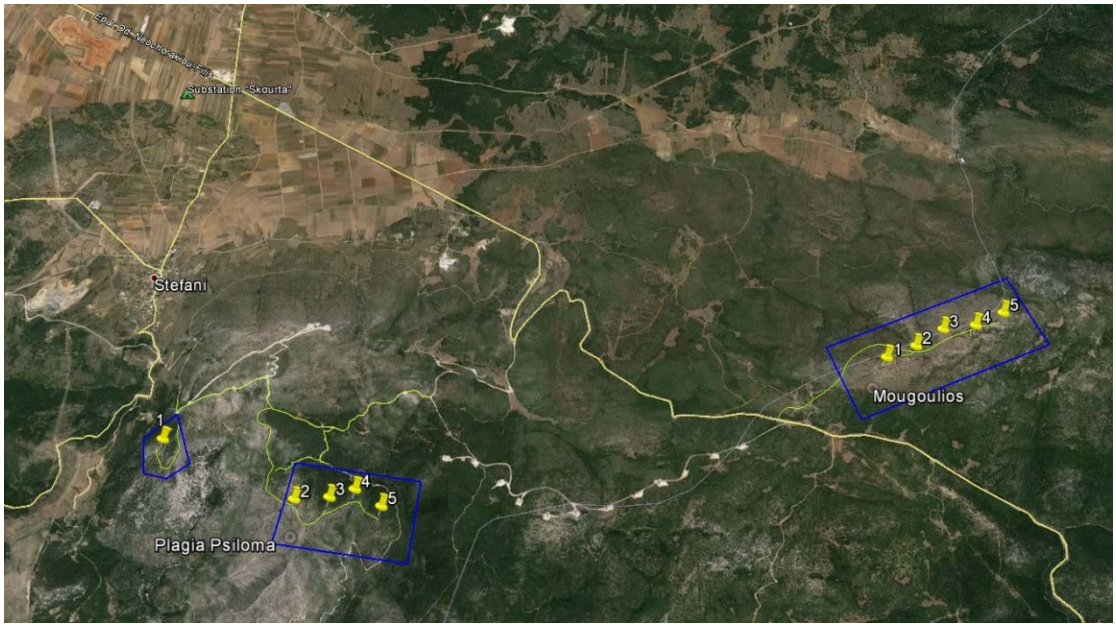


The projects namely, accompanied by a more detailed map:

- “Mavroplagia - Kastro”; 17,2MW
- “Plagia - Psiloma”; 14,9MW
- “Mougoulios”; 16,5MW



Layout of W/F “Mavroplagia - Kastro”



Layout of W/Fs "Plagia - Psiloma" & "Mougoulios"

This document (the Non-Technical Summary NTS) outlines a brief description of the three wind farms and the findings of the Environmental Impact Assessment that was submitted for approval in the Region of Central Greece for each project. To this extent, all the wind farms, during 2015, have been granted the Environmental Terms Approval Decision by the Region of Central Greece as analyzed below. The Environmental Terms Approval Decisions are publically available documents, they can be found at http://aepo.ypeka.gr/ and their validation period is ten years.

The Environmental Impact Assessment of each project is based on structure prescribed by national legislation and includes comprehensive information on environmental and social issues.

1.1. Project Alternatives

During the project development, a number of alternatives have been identified and analyzed, including Project location, technology, access roads, suitable wind turbines and zero solution ("no project"). Other locations, nearby the project, were evaluated but finally rejected for the following criteria; unsuitable wind and geological data, inadequate existing road and grid access and higher environmental impact. The project location, among other reasons, was chosen because of using existing infrastructure (public prefectural roads and substations) and avoiding any Natura2000 areas. The evaluation described above, resulted also in the optimum wind turbine siting.

2. Projects Description

Dervenohoria Projects are located in the region of Central Greece, in the municipality of Tanagra, Prefecture of Viotia. The projects' location is not considered to be sensitive area nor is it a Natura2000 area. The nearest Natura2000 area is approximately 2.3 km away from w/f "Mougoulios", 5.5 km from w/f "Plagia – Psiloma" and 20 km from w/f "Mavroplagia – Kastro".

Dervenohoria Projects and Sensitive areas

In general, the terrain of the three wind farms is mountainous, dominated mainly by low vegetation, with average base elevations ranging between 800-1000m.

W/F "Plagia-Psilwma"; Aspect of the area currently.

W/F "Mougoulios"; Aspect of the area currently.

W/F "Mavroplagia-Kastro"; Aspect of the area currently.

The three wind farms consist of 18 wind turbines (WTGs).

“Mavroplagia Kastro” wind farm consists of 8 WTGs totaling 17,2 MW.

“Plagia- Psiloma” and “Mougoulios” wind farms consist of 5 WTGs each, totaling 14,9 MW and 16,5 MW respectively.

2.1. Projects Rationale

Renewable energy technologies are clean sources of energy that have a much lower environmental impact than conventional energy technologies. The aim of the project is the use of the wind potential of the area to produce clean electricity. The proposed investment utilizes an inexhaustible natural resource without burdening the environment as there is no waste production. It also increases the national rate of energy autonomy. Indirectly it has a positive impact on national scale as it contributes to saving fossil fuels and avoiding the use of other solid or liquid fuel that would otherwise be necessary to produce the same electricity power and which, moreover, during combustion will produce air pollutants with negative environmental impact (greenhouse effect, ozone depletion, acid rain, etc.). Dervenohoria projects will produce annually 138.7GWh which means 106906 tn CO_2 savings per year.

2.2. Projects Components

Wind Turbines

The key component of the wind farms are the wind turbines, which convert the kinetic energy of the wind into electricity. The manufacture chosen for W/F “Mavrolagia Kastro” is Vestas. Six wind turbines V100-2,2MW & two wind turbines V90- 2MW. The manufacture chosen for W/Fs “Plagia Psiloma” and “Mougoulios” is NORDEX. Three wind turbines N100- 3,3MW & two wind turbines N90- 2,5MW for the W/F “Plagia Psiloma” and five wind turbines N100- 3,3MW for the W/F “Mougoulios”.

Road Network

10Km of new or renovated road network including internal wind farm roads network and external access roads will connect “Mavroplagia Kastro” windfarm site with public prefectural roads. 2,8Km of new network including internal wind farm roads network and external access roads will connect “Plagia Psiloma” wind farm site with public prefectural roads. 2,5Km of new network including internal wind farm roads network and external access roads will connect “Mougoulios” wind farm site with public prefectural roads.

Grid

Generally, the interconnection of a wind farm is included in the Environmental Impact Assessment and the environmental evaluation takes place for all the project components. As a result, the ETA Decision refers also to the grid connection. More specific, about Dervenohoria

projects and their interconnection, the EIA process indicated that the entire length of the Medium Voltage power line will be underground in order to minimize the environmental and visual impact.

Since the ETA is issued and there is grid availability, the Connection Agreement with the Transmission System Operator can be signed. The Connection Agreements for Dervenohoria Projects were signed during 2015.

According to Company's design for Grid Connection and the respective Connection Agreements with the Transmission System Operator, two out of three windfarms, "Plagia-Psiloma" and "Mougoulios", will be connected to the grid through a new extension of the existing and already in operation 20/150kV Substation called "SKOURTA".
The third Windfarm "Mavroplagia-Kastro" will be connected to the grid through the existing and already in operation 20/150kV Substation called "PANORAMA".
The length of the MV collection circuits from each Windfarm to the corresponding Substation is as following:

- 1,5 km of underground Medium Voltage 20KV collection circuit from the existing "Panorama" Substation to the first collection string of WTGs of "Mavroplagia-Kastro" Windfarm and 2,4km to the second collection string.
- 5,5 km of underground Medium Voltage 20KV collection circuit from the existing "Skourta" Substation to "Plagia-Psiloma" Windfarm.
- 12,5 km of underground Medium Voltage 20KV collection circuit, from the existing "Skourta" Substation to "Mougoulios" Windfarm.

3. ESIA and Land Acquisition Process

3.1. ESIA

The environmental and social impact assessment has been prepared with consideration of the Greek environmental legislation as well as the Performance Requirements (PRs) of the European Bank of Reconstruction and Development (EBRD), covering key areas of environmental and social impacts and issues, are also taken into account.

3.2. Greek Environmental Permitting Process

The envrionmental permitting process of a project is mainly stipulated by the Laws L.3851/2010 ("Accelerating the development of Renewable Energy Sources to deal with climate change and other regulations addressing issues under the authority of the Ministry of Environment, Energy and Climate Change") and L.4014/2011 ("Environmental permitting of projects"). This comprises of a number of key steps:

- The license to produce electrical energy from R.E.S. is issued with a decision of the Regulatory Authority for Energy (R.A.E.)

- Environmental Terms Approval (ETA). Upon submission of the EIA assessment, the Ministry of Environment and Energy or the Region of the specific installation area reviews the report and either approves the study and grants the environmental permit for the project (in the form of terms; Environmental Terms Approval) or rejects it. To this extent, for the W/F “Mavroplagia-Kastro” the ETA has been granted in June 2015, for the W/F “Plagia- Psiloma” also in June 2015 and for the W/F “Mougoulios” in October 2015.

3.3. Land Acquisition Process

The wind farm site, as a whole, consists of public land. The approval for intervention in this area has been granted and incorporated in the Environmental Terms Approval Decision according to L.4014/2011 and the Ministerial Decision 15277/2012.

Before the wind farm installation, the company will pay in exchange the use forest land acquisition.

4. Summary of Environmental and Social Conditions and Impacts

4.1. Introduction

The Environmental Impact Assessment of each project consists of studies for several issues (environmental, social etc.) and an assessment of impacts. Mitigation measures are identified and also included. The assessment follows the current best practices.

4.2. Environmental and Social Impacts

a) Landscape and Visual

The terrain in general is mountainous, with average base elevations ranging between 800-1000m.

The nearest settlement for the W/F «Mavroplagia – Kastro”, is within an approximate distance of 530m, for the W/F “Plagia-Psiloma” in a distance of 1,2km and for the W/F “Mougoulios” in a distance of 6km. According to the undertaken visibility analysis, no remarkable view by the settlements to the wind farms could be identified. Moreover, the criteria set by the Greek Specific Planning Framework for the Renewable Energy Technologies (Ministerial Decision 49828/2008) referring to the visual impact, are fully met.

A photo montage is given of how the turbines will look like.

Photo montage for W/F “Mavroplagia Kastro”. View from an operational W/F 550m south.

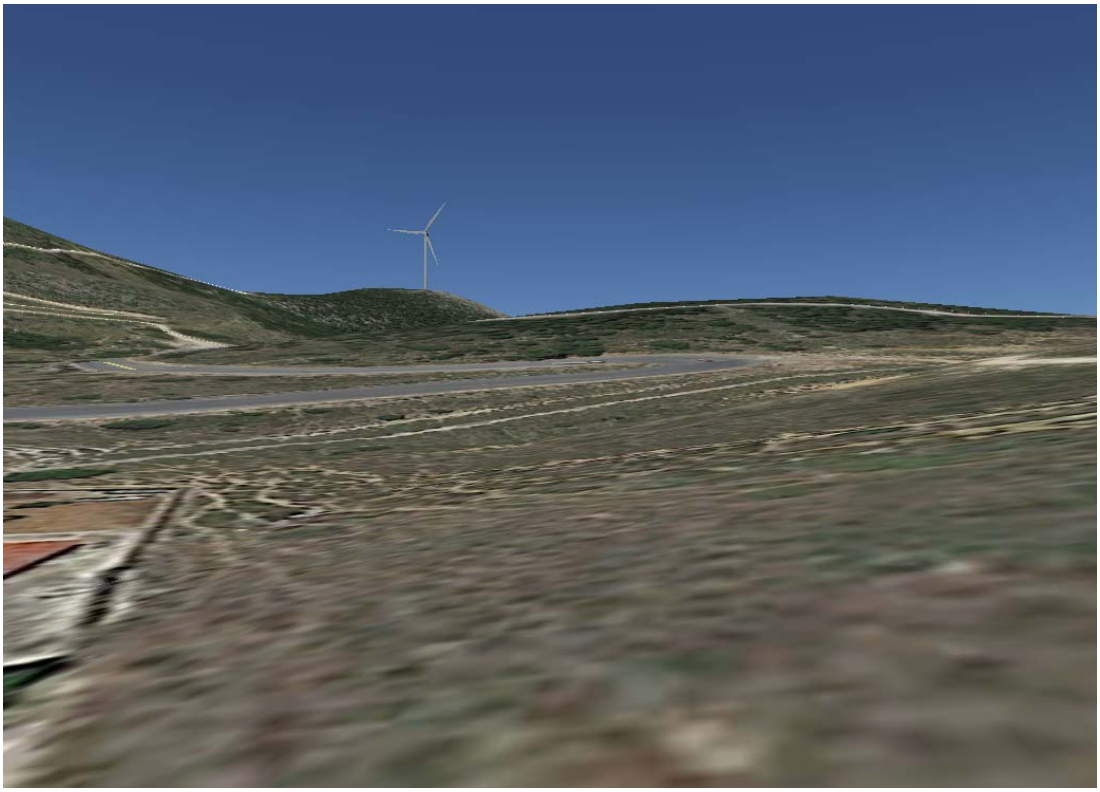


Photo montage for W/F “Plagia Psiloma”. View from the settlement “Stefani”, 1200m north.

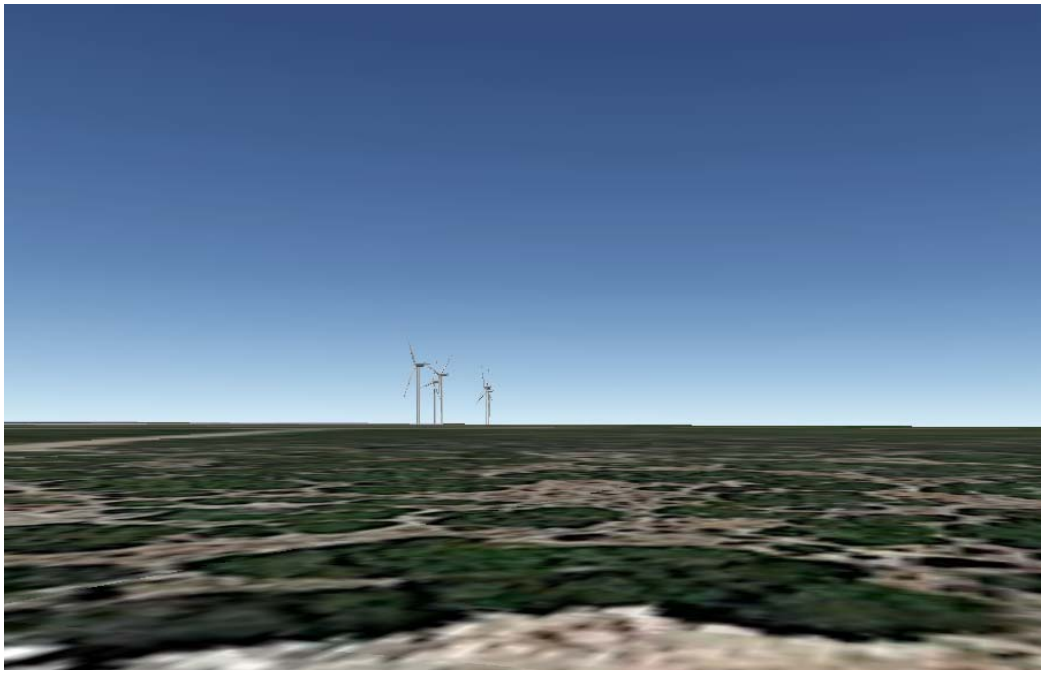


Photo montage for W/F "Mougoulios". View from an operational W/F 1300m west.

It is clarified once again that there is no remarkable view from the nearby settlements and all the criteria set by the Greek Specific Planning Framework for the Renewable Energy Technologies, are fully met.

b) Land Use

The wider area around the three wind farms site is covered with sparsely forest vegetation and is mainly used as grazing land. The project purpose does not conflict with any land planning as set by the various governmental institutions.

c) Geology and Hydrology

The terrain is mountainous, dominated mainly by low vegetation.

There are no events of instability or landslides.

The underground water in the region develops in several depths in successive water zones, among which interpose impermeable layers of rocks. In the sense of production capacity, the underground water develops mainly at depths not influenced by the studied structures.

d) Flora

The project area is not part of the Natura2000 Network. The closest Natura2000 area is depicted in Section 2, in combination with the Dervenohoria Projects location. Since the project

site is not located within a sensitive area and there are no Sites of Community Importance for the flora, a preliminary ecological assessment took place.

The flora of the wider is not particularly lush. The surface is covered with sparsely forest vegetation. Impacts are generally considered to be minor. However mitigation measures will be developed. A planting program will be applied so that there can be natural growth of vegetation.

e) Fauna - Avifauna

The project area is not part of the Natura2000 Network. The project site is not located within a sensitive area and there is no Special Protected Area for the birds and avifauna.

In the vicinity of the installation site, the presence of goats is intense. As already mentioned previously, the area is mainly used as grazing land. Some animals seem to exist in the surrounding area, such as; Fox, Squirrel, Ferret, Badger, Hedgehog. Bats are not a concern for the projects as long as the area is not bat sensitive. The most often found birds, mostly derived from Mountain Kitheronas are; Mountain Grouse and Raven. Impacts are considered to be minor. However mitigation measures will be developed. The special marking of the wind turbine and the post construction monitoring will contribute to the reduction of any impact.

As far as the project location is not part of Natura 2000 Network nor is it an Important Bird Area, there is no obligation by the legislation to contact Greek Ornithological Society. Indeed, it is not foreseen by the environmental authorities.

f) Archaeological and Cultural Heritage

No archaeological findings are detected within the wind farm site. However, in the wider area there are some archaeological sites. Impacts are considered to be minor. Moreover, the criteria set by the Greek Specific Planning Framework for the Renewable Energy Technologies (Ministerial Decision 49828/2008) referring to the required distance and the visual impact, are fully met.

g) Air Quality and Noise

In the wider area there are no activities that burden the ambient environment, nor increase noise and radiation at significant levels. Construction activities may produce an increased level of dust and noise. Impacts are considered to be minor and limited during the construction period. According to the noise modelling, no residential or inhabited areas will be impacted by the turbines.

h) Occupational Health and Safety

In order to ensure the health and safety of all personnel engaged in the wind farm during both Construction and Operation period, a detailed Occupational Health and Safety Plan will be developed.

At this point, it is mentioned that the company implements certified management systems for quality (ISO9001), environment (ISO14001) and Occupational Health & Safety (OHSAS18001) in order to manage in depth specific CSR issues. The overall CSR Strategy of the group follows internationally established guidelines and frameworks, such as ISO26000, OECD Guide on Multinationals, the UN Global Compact and the UN Sustainable Development Goals.

i) Community, Security, Socioeconomic

Referring to the impacts of the wind farms in the community, they are considered to be very positive in both social and environmental aspect. There is no movement or change in the human population due to the investment. Therefore the current residence conditions are not affected.

Public consultation took place during the environmental permitting and the expressed opinions were taken into account by the issuing authority. Among others, the Regional Council issued a positive opinion. Once the Wind Farm is operational, the Operating License is published in the main website www.diavgeia.gov.gr.

Overall, based on the above, there seems no significant impact since:

1. The wider area is not part of the Natura2000 Network. There is no Special Protected Area for the birds and avifauna, nor exist Sites of Community Importance for the flora.
2. The ecosystem and flora of the region are degraded and secondly, the area occupied by the structures of the Wind Farms is small.
3. Regarding the birds and avifauna, the special marking of the wind turbine will contribute to the reduction of any impact.
4. Potentially impacts on the landscape, due to the road network construction, can be dealt with preventive and remedial methods. Preventive, via careful road design by avoiding extensive ditches and slopes that will be visible from a long distance. Remedial methods can be the application of a planting program on either side of the road, providing at the same time the necessary background soil (topsoil) so that there can be natural growth of vegetation that prevents erosion due to rain or wind.
5. Regarding the Socio-economic environment, the impacts are positive and are associated with increase of the visits in the area, generally. The indirect economic benefits from increased employment and local economic activity is important. Moreover, there is a significant enhance in the fire safety and the fire extinguishing

conditions through the accessibility given by the new roads, usually in forestry areas that had no access.

6. According to the noise study (accompanying the EIA) which regards both the EIA project and the adjacent under operation, there is no excess in the noise limit of 45db for the nearby settlements.

7. Finally, regarding the atmospheric environment - climate change, it is obvious that the installation of wind farms works cumulatively with extremely positive way since the benefits of the substitution of conventional energy sources to the global warming and climate change are impressive and undeniable.

5. Environmental and Social Management and Monitoring

The Environmental Impact Assessment outlines the monitoring program. Monitoring during both construction and operation period includes observations and recording.

The monitoring will ensure that values of pollution loads and concentrations will be in accordance with applicable regulations. The same for the noise level and vibration. Antipollution measures, will also be applied. Birds, biodiversity, archaeology will also be monitored. In general, the construction and the operation of the wind farms will be in accordance with the terms set in the Environmental Terms Approval Decision.

As already mentioned in paragraph 4.2.g, the Company implements certified management systems. The sustainability performance of the Company`s projects is monitored continuously, based on established procedures outlined in its management systems. In addition, regular management audits are performed to ensure due diligence, as well as early identification and mitigation of incidents or accidents relating to environmental and social issues.

6. Further Information & Contact Details

Further information for the Project can be requested at: **info@terna-energy.com**

The Environmental Impact Assessment and the Terms Approval Decision are also available at the following entity:

Ministry of Environment and Energy

Address: 17 Amaliados str., 115 23 Athens, Greece
Telephone: 213 15 15 000
Fax: 210 64 47 608
International calling code for Greece is +30

Public Opening Hours
Citizens: 12:00 - 14:30
Lawyers - Engineers: 11:00 - 14:30