

How the impacts of wind farms on biodiversity can be reduced

Modern technologies and best practices can help to avoid and/or reduce the impacts of the wind farms on the biodiversity during their design, construction and operation.

The use of new technologies such as (fig. below):

- Radar,
- Smart systems with high resolution cameras
- Infrared cameras,
- Acoustic surveillance systems

along with traditional methods of data collection, and information on the responses of birds to wind turbines in the management and operation of wind farms, can help to reduce the impact on birds and biodiversity during the operation stage.

Moreover, an important issue during the operation of the wind farms is the use of the so called “Early Warning Systems”, which allow the continuous observation of the birds and simultaneously the control of the operation of the wind farms, aiming on the prevention of possible collisions.

These systems are in operation in several countries, such as in the USA, Spain, The Netherland, Norway, U.K., and in recent years also in Greece.



Automated systems for the reduction of bird collisions to wind turbines

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Demonstration of Good Practices to minimize impacts of Wind farms on Biodiversity in Greece



The project Windfarms & Wildlife

The project Windfarms & Wildlife “Demonstration of good practices to minimize impacts of Wind farms on Biodiversity in Greece”, (LIFE12BIO/GR/000554), is implemented by the Centre for Renewable Energy Sources & Saving, CRES and by the Nature Conservation Consultants, NCC Ltd, with the financial contribution of the European Union, within the LIFE+ programme, for the period 2007-2013.



The aim of the project

The project Windfarms & Wildlife aims in the pilot demonstration and evaluation of modern technologies, including radar, infrared cameras, high resolution cameras and bat detectors, as well as on the demonstration of good practices, for the minimization of the impacts of wind farms on the biodiversity of Greece.



The project addressed to wind farm investors, stakeholders, state authorities, and to the scientific community and environmental organizations.

Biodiversity and Windfarms

During the last decade, in Greece, there is a tremendous increase of energy production through wind farms and an increasing tendency to reach the EU objective where until 2020 the 20% of EU total final energy consumption should be derived from renewable resources.

In 2014 the total installed capacity of wind farms in Greece was 1.9 GW.

From the current experience, and in several cases, expressed the view that there are substantial impacts on the biodiversity, mostly on birds and bats, from the construction and operation of the wind farms. These impacts mainly concern with loss of habitat, noise effects, and mortality caused by collisions with wind turbines.

The project is implemented at CRES Wind Farm-PENA demonstration park, at Keratea, and at other areas of Greece where wind farms have been installed.

PENA (www.penaproject.gr), the Park of Energy Awareness is the only demonstration park in the country, which provides practical education and training for renewable energy issues through pilot plants and with the organization of seminars and training courses to university students, engineers and other stakeholders from Greece and abroad.

Within the project, among others:

- ❖ Demonstrated and evaluated technologies and practices for the reduction of the impacts of the wind farms on biodiversity and on the electricity production.
- ❖ Developed directions and guidelines for investors and stakeholders, through a Good Practice Guide and a Decision Support Tool, in accordance with the EU directions, for the more effective applications of the new technologies and practices.
- ❖ Implementation of training seminars for stakeholders on the proper use of biodiversity mitigation technologies.

Impacts of the wind farms on the biodiversity

Impacts of the wind farms on the biodiversity have been noticed during the construction and operation of the wind farms.

These impacts concern with loss or demotion of habitat, noise effects or transposition and in extreme cases mortality caused by collisions with wind turbines or other related facilities such as grid connection lines.

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