



REPUBLIC OF BULGARIA

Ministry of Environment and Water

19 March 2025, Sofia **OVOS-54-32**

Subject: Environmental Impact Assessment Report for the project "Wind farm with installed capacity of 44 MW in Polemistis, Komotini and Ariane municipalities, Komotini and Organi municipal units, Rhodope region, Eastern Macedonia and Thrace region, Greece", with the contracting authority WPD AIOLIKI ENERGEIA 1 SMPC

Dear Mr. Minister,

With this letter we confirm the receipt of a letter (by e-mail – with entry No. EIA-54-23/21.11.2024), with which WPD AIOLIKI ENERGEIA 1 SMPC presents an amended Environmental Impact Assessment Report for the project "Wind farm with installed capacity of 44 MW in Polemistis" in Komotini and Ariane municipalities, Rhodope region, Eastern Macedonia and Thrace region, Greece

H.E. Mr. Theodoros Skylakakis

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After reviewing the documentation and based on the submitted opinions of the interested and competent authorities, I express the following opinion:

Regarding biodiversity and protected areas:

A static assessment of the mortality of birds of prey in this park has been made from 1.65 to 1.90 specimens per year based on a WWF study in Greece, with the approximate conclusions also supported by three separate international studies (in Spain). This suggests a small impact on the populations of individual vulture species with no more than 2 specimens dying per year on the territory of the Polemistis wind farm. However, we draw attention to the fact that these data only represent a prognostic mortality model for birds of prey.

In the additional report submitted to the Ministry of Environment and Water, the cumulative effect was also assessed as insignificant, noting that it is currently unknown what proportion of all investment intentions (capacity) will be licensed ("Moreover, this percentage does not specify which of these projects will be licensed, making it impossible to incorporate them meaningfully in the assessment of cumulative or synergistic impacts.").

There are also uncontrollable factors, such as weather conditions (poor visibility), bird habituation to the turbines and use of the territory for flying and hunting (especially at low altitude) in relation to birds and bats. In this regard, the following measures and conditions should be included in the final decision to be taken by the competent environmental authority:

1. The monitoring program (5. Monitoring Program) should be detailed to ensure monitoring with sufficient frequency of the proposed wind farm. A monitoring program has been presented, which also includes the indices "bird and bat collisions", "avid fauna", "habitats". Regarding the frequency of the survey of the indicator "bird and bat collisions", a "monthly field survey for any dead birds and bats during operation for 3 years" is provided. We draw your attention to the fact that monthly surveys ("searches should be carried out regularly on a monthly basis for the first 3



years of operation") are insufficient, since the remains of dead birds and bats are quickly utilized by ground predators (in many cases without any remains in the case of small bird species and bats). Given this, this type of monitoring is only applicable to large species (e.g. vultures, pelicans, cranes). Additional methods such as camera traps can be used to continuously record the situation in the area under the fins. We note that the optimal monitoring period for this index is the entire study period, and not only for 3 years, as set out. In the event that a full follow-up monitoring program is carried out in the current Polemistis wind farm, the farm itself will establish precise mortality rates for individual taxonomic groups, which will be useful both for the current farm and for the development of future wind farms in Greece.

2. Construction phase. Appropriate mitigation measures should be implemented in terms of preventing and minimizing mortality rates for birds of prey, as well as birds in general. These can be related to the structural and design characteristics of the wind farm, as well as to the individual blades and elements (e.g. technical solutions to prevent birds from landing on the blade towers and reduce the risk, painting the blades in bright and contrasting colours to improve visibility for birds). Implementation of modern technologies to reduce noise from turbines. Bat mortality rates are generally higher on nights with low winds, an effective mitigation measure seems to be increasing the minimum wind speed requirement for turbine start-up (the speed at which turbines start producing electricity) and changing the blade angles to prevent them from rotating in low winds. This measure has been shown to reduce bat mortality by 60% (Arnett et al., 2008, Arnett et al., 2011, Baerwald et al., 2009). The EUROBATs "Guidelines for consideration of bats in wind farm projects" (2015) should also be fully implemented.

3. Improvement of adjacent habitats. When restoring or creating new habitats suitable for nesting and feeding in the vicinity of the wind farm, this compensates for the lost areas and attracts birds away from the turbines. Planting typical vegetation and placing artificial nests in suitable locations. It is also assumed that providing additional food in feeders outside the wind turbine area is also a very effective measure.

4. Operation phase and collision risk. The EIA report also provides specific mitigation measures in relation to the operation phase when significant levels of fatalities are identified ("If a significant number of fatalities from impacts (or barotrauma) occur during post-operational monitoring, it is proposed that mortality reduction measures such as increasing the minimum wind intensity for activation of the A/Cs be taken"). The key measures to significantly reduce the impact are to adjust the operation of wind farms, for example by temporarily stopping the turbines when birds are nearby, especially during sensitive periods such as migration seasons, prolonged low light conditions and reduced visibility. This can be informed by radar or a visual surveillance system, as well as by the detection of increased mortality when implementing the monitoring program. A video surveillance system, combined with decision-making software, has the ability to take two independent actions to reduce the risk of bird strike: to activate warning sounds and/or to stop the operation of the wind turbine (European Council, 2020). According to the literature, the effectiveness of the selective exclusion method can significantly reduce the mortality of vulture species. Periodic removal of all dead animals in the wind farm area to reduce the possibility of attracting birds of prey and the occurrence of new incidents.



5. All existing international and European best practices and guidelines should be used (e.g. Bern Convention: Recommendation No. 109 (2004) on minimising adverse effects of wind power generation on wildlife; Guide de l'étude d'impact sur l'environnement des parcs éoliens, Ministère de l'Ecologie et du Développement Durable Agence de l'Environnement et de la Maîtrise de l'Energie). The Republic of Bulgaria has also developed and is implementing a national one: "Methodological guidelines for conducting ornithological monitoring of wind farm sites during bird migration (approved at a meeting of the National Council for Biological Diversity on 8 June 2010)", available from:

<https://www.moew.government.bg/bg/priroda/zakonodatelstvo/rukovodstva-i-preporuki/>.

With regard to the information in the report on the assessment of the degree of impact (DOSV) of the wind farm on the subject and objectives of the protection of protected areas (PA) within the meaning of Article 6 (3) of Directive 92/43/EEC, I hereby inform you of the following:

The report states that for the purposes of the report, field surveys were conducted using appropriate methods (including the use of detectors) within a range of 500 m outside the boundaries of the site, incl. and on Bulgarian territory in the Protected Area BG0001032 "Eastern Rhodopes" for the protection of natural habitats and wild flora and fauna and the degree of impact of the project on. The subject of protection in it are several species of bats, which (as well as birds) are determined to be particularly sensitive to the operation of wind turbines, of which the species *Barbastella barbastellus*, *Myotis bechsteinii* and *Rhinolophus blasii* are in the Vulnerable (VU) category in the European Red List. Based on the analysis, it was concluded that the implementation of the wind turbine park will not lead to significant negative impacts on the bat populations protected in the protected area BG0001032 "Eastern Rhodopes", i.e. there will be no transboundary impact on it.

Despite the nature of the conclusions, the DOSV provides for measures to protect bats, including requirements for the design, construction and maintenance of turbine nacelles in a way that does not allow their use as shelters - all openings and gaps must be inaccessible to them. In addition, lighting that does not attract insects should be used and used only when necessary, water retention and the growth of weeds and new bushes in the immediate vicinity of the wind turbine structure should be avoided, new plant fences, other groups of bushes and trees, forests and orchards should not be allowed in the 200 m zone around the wind turbines, systematic and continuous monitoring of bat losses during operation, data analysis and installation of a blade detection and shutdown system similar to that for birds.

We believe that the analysis of the impact on bats, subject to conservation in the protected area BG0001032 "Eastern Rhodopes" and on the area as a whole is objective, and the envisaged measures are sufficient to minimize/eliminate the negative impacts on them.

Regarding human health:

The wind farm will be located on hilly terrain, at a distance of between 50-100 m from the Bulgarian border, along ridges, about 8 km north of the village of Drimi in Greece.

The closest settlements in Bulgaria to the Polemistis wind farm are the villages of Egrek and Buk in the Krumovgrad municipality and the village of Malkoch in the Kirkovo municipality. The villages are more than 3000 m from the wind farm.



The information provided indicates that the large distance from settlements, as well as the isolated nature of the site, significantly reduce the potential adverse health effects on the population in the area. The risk factors related to human health during the construction, operation and decommissioning stages of the wind farm have been examined, and mitigation measures have been proposed to ensure minimal impact on the environment and the population of nearby settlements. From a health perspective, the following recommendations can be made regarding the assessment of the investment proposal:

Atmospheric air

There is no analysis in a transboundary aspect.

Dust emissions are expected to be generated during construction, for which measures have been provided. During operation, the wind farm does not generate air pollutants.

Soil and waste

Industrial waste will be generated during the implementation of the investment proposal. Waste management measures must be provided in accordance with legal requirements.

Physical factors

The documentation presents a reasoned forecast of the impact of physical factors on the health of the population from the planned wind farm.

Noise

The EIA report presents a reasoned forecast of the impact of physical factors on the health of the population from the planned wind farm. The wind turbines to be used will be Vestas type V150, with a nominal power of 4 MW, a rotor diameter of 150 m and a total height of the wind tower of 200 m.

According to a noise propagation study, the noise levels from the wind farm will not exceed the limit value of 45 dB in any settlement or place subject to assessment on the territory of the Republic of Greece.

The noise levels for each settlement in Bulgaria, measured in decibels (dB) and based on the worst-case scenario of maximum turbine power, are as follows: Egrek: 22.8 dB(A), Buk: 20.2 dB(A), Malkoch: 18.8 dB(A). The relatively low noise levels in the three settlements are mainly due to the significant distance from the wind turbines. The potential cumulative health impacts of the operation of the Pyramis Vrachou, Anemoni, Pseftis and Agateia wind farms located in the area of the investment proposal under consideration have not been considered. Due to the significant distances, the authors of the report probably considered that no risk to the health of the population in the nearest villages of the Republic of Bulgaria related to the impact of physical factors can be expected. This most likely gave the authors of the report reason to consider that during the operation of the wind turbines, no impacts of physical factors on the population of Bulgarian settlements can be expected.

According to the authors of the report, given the location and potential impact of the investment proposal on the environment, no significant combined or cumulative impact on the population in the area is expected.

Non-ionizing radiation (NIR)

Non-ionizing radiation in the area of wind energy facilities is mainly in the range of ultra-low frequency (ULF) and low frequency (LF) electromagnetic radiation (EMR). Since the facilities are



generators of electric current, all problems related to the harmful effects of electric (EF) and magnetic fields (MF), established at the basic generated frequency of 50 Hz (industrial frequency), apply to them, as well as to other known systems related to the generation, transmission and distribution of electric energy.

Sources of EP and MF with industrial frequency are indoor switchgear, transformers, high-voltage power lines, outdoor switchgear. Wind power facilities generate current that is distributed over a medium-voltage network.

The impact of non-ionizing radiation can be expected in the vicinity of the energy facilities. The distance of the wind farm to the settlements in Bulgaria is 3000 m, which is why, most likely, the authors of the report consider that there is no risk in a transboundary aspect.

Adverse light effects

The "light effects" of wind power plants are one of the most problematic aspects of the assessment of the impact of NLR on the human visual analyzer. Individual perception varies widely: turbines are perceived as "dynamic visual sculptures" by some or seen as "unacceptable visual irritation" by others.

The perception depends on the atmospheric conditions and the time of day. Moreover, the installation location, the size of the turbines, the color of the towers are of great importance for unpleasant visual effects.

The stroboscopic effect should also be taken into account in connection with the possible impact on birds.

It should be borne in mind that glare – reflections of the sun's rays from the rotating propellers – can create unpleasant sensations when driving.

Such an impact can be expected in the event of reflected radiation from the wind turbine blades falling into the field of view of people residing in the area.

In this regard, a Visual Impact Assessment for the Polemitis Wind Farm has been presented through modeling, which shows that the wind farm will have limited visual impact on the landscape, especially with increasing distance from the turbines. The analysis confirms that due to both the positioning and the design of the turbines, visibility decreases significantly with distance. According to the results indicated in the report, the villages of Egrek, Buk and Malkoch on the territory of Bulgaria are not expected to be significantly affected.

In connection with the above, in order to minimize the likelihood of health risks in a cross-border aspect mainly related to excessive levels of noise and non-ionizing radiation, as well as the impact of the so-called "light effects", we believe that the following conditions related to the implementation of actions for cross-border environmental and health control should be recorded as mandatory for implementation in the administrative act that will be issued by the competent Greek authorities for the investment proposal under consideration:

1. Given the fact that the villages of Egrek, Buk and Malkoch, regardless of the indicated distance, will be under the influence of several wind farms, an assessment of the impact of physical factors in a cross-border aspect, and in particular of light effects, should be carried out at the design stage. The assessment should be provided to the Bulgarian authorities.
2. The paint of the wind turbines (tower and rotor) should be of the "absorbing" type, so as not to create conditions for reflections of the incident light.



3. Wind farm with an installed capacity of 44 MW "Polemistis" in the municipalities of Komotini and Ariane, municipal units of Komotini and Organi, Rhodope region, Eastern Macedonia and Thrace region, Greece, to be implemented, in compliance with all measures provided for in the EIA report, to prevent, reduce and eliminate harmful impacts on the environment and living environment and health of the population as a result of the implementation of the site, which shall be included as mandatory for implementation in the final act of the Greek authorities.

4. After the implementation of the investment proposal, to provide for the implementation of control monitoring of noise levels, non-ionizing radiation and light effects on the border with the affected Bulgarian settlements. The results of the monitoring shall be provided to the competent Bulgarian authorities.

Please accept, Honorable Mr. Minister, my highest regards and readiness for successful future cooperation.

Sincerely,

Manol Genov

Minister of Environment and Water

A handwritten signature in black ink, consisting of a stylized 'M' and 'G'.