

# Press release

## Paint it black?

### **The results of a Norwegian study on the reduction of collision risks at wind turbines are not applicable to Germany.**

#### ***The workshop participants recommend further research on effectiveness and implementation at German sites.***

Berlin, February, 25, 2021

Last July, a study by the Norwegian Institute for Nature Research (NINA) received much attention: In a large Norwegian wind farm with a very high breeding density of white-tailed eagles, the collision rate was significantly reduced at turbines with one black painted rotor blade relative to unpainted turbines. Overall, there was an average 72 percent reduction in the annual fatality rate.

The Competence Center for Nature Conservation and Energy Transition (KNE) and the Federal Agency for Nature Conservation (BfN) held a workshop with 30 experts and a discussion event with more than 130 participants to discuss these results from different angles. In conclusion, the Norwegian approach is not applicable to Germany.

"The dimensions of the turbines, the species spectrum and the breeding situation in Norway differ significantly from conditions in Germany" stressed KNE-expert **Dr. Elke Bruns**. "Nevertheless, the measure sounds promising. It should be examined whether birds behave significantly differently when approaching turbines with a black blade compared to turbines with red-white blade tips that are typical in Germany. One could gain valuable insights in evasive action of species sensitive to collisions. These insights are also important to assess the probability of collision" Bruns said.

**Kathrin Ammermann** (BfN) pointed out that "a near-term proof of the effectiveness of the measure 'black rotor blade' in Germany is not to be expected due to numerous open questions, e.g. regarding the species spectrum, possible research methods, the number of sites, etc. Possible investigations could be concretized through a feasibility study."

**Boris Stemmer** (University of applied sciences Ostwestfalen-Lippe) addressed visual impacts of black rotor blades: "Any measure for improved bird protection is, in principle, to be welcomed. In this case, there is reason to fear that improved protection of the avifauna will be at the expense of the perception and experience of nature and landscape. An empirical social study would have to be conducted to actually estimate visual effects. If wind turbines with a black blade can be developed in areas that were previously not available [for wind energy] due to species protection, one should not expect that this will significantly improve acceptance of the energy transition. Areas that are valuable for nature conservation are often also particularly important for landscape experience."

**Bernhard Stoevesandt** (Fraunhofer Institute for Wind Energy Systems) brought up technical questions. "Rotor blades are structurally highly stressed components. As heating by solar radiation could significantly affect the structure, black rotor blades are an unresolved technical challenge. If the concept is to be applied, there is still much to be clarified."

The experts agreed that it was unlikely that black rotor blades would soon be implemented. However, the approach is certainly worth further research. Jan Hildebrandt (Institute for future energy and material flow systems) stated that acceptance in the population did not solely depend on landscape change. This aspect could be overlaid by other acceptance factors. There was not necessarily a direct link.

### **Background**

The study, which covered a period of eleven years, was carried out at the Smøla wind farm by a group of researchers led by Dr. Roel May of the Norwegian Institute for Nature Research (NINA). In contrast to the sparsely or not at all populated Norwegian test site, most of the wind turbines in Germany are in the proximity of settlements.

### **Video: simulation of wind energy turbines with a black rotor blade**

The video-animation developed on behalf of the KNE by the Lenné3D comparatively shows wind turbines with red-white blade tips that are typical for Germany and wind turbines with a black blade. The turbines shown correspond to models available on the market from a German turbine manufacturer. They have a total height of 230 meter, a hub height of 160 meter and 70-meter-long rotor blades. The arrangement of the turbines corresponds to a realistic wind farm design with a 5-fold lateral rotor spacing. The distances between the turbines and the viewer, respectively the camera, are 1,000, 2,000 and 3,000 meters. In the video, the rotors turn at 10 revolutions per minute which corresponds to operation at medium wind speed.

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