

Wind farm impact assessment: overview from onshore field studies and application in legislation procedures in the Netherlands.

Hein Prinsen¹, Jonne Kleyheeg-Hartman¹, Ruben Fijn¹, Camiel Heunks¹

¹Bureau Waardenburg, Culemborg, Netherlands.

Contact: h.prinsen@buwa.nl

Abstract

The Dutch government recently published its National Wind Energy Plan, which includes the installation of at least 6,000 megawatts of onshore wind power in the coming years in order to meet its 2020 targets for renewable energy. The plan details 11 locations for large-scale (>100 MW) wind farms as well as incorporating an agreement with regional authorities to further develop at least another 285 MW in smaller onshore wind farms.

The relatively small size of the Netherlands along with its intensive spatial planning, means that most of these planned wind farms are located nearby or even within important nature areas, including Natura 2000 sites, migration hot spots and key sites for sensitive bird species such as Bewick's swan, spoonbill, purple heron, black-tailed godwit and tern species. It comes, therefore, as no surprise that the Strategic Environmental Assessment of the National Wind Energy Plan concludes for most of the proposed wind farm locations that significant negative effects on Natura 2000 features cannot be excluded beforehand and detailed Appropriate Assessments (AA) are needed. This requires comprehensive knowledge of the species-specific responses to wind farms and the possible impacts of disturbance and collisions to inform the Environmental Impact Assessments (EIA) and further legislation procedures.

Here, we present an overview of recent (field-based) studies that we have carried out in the Netherlands to establish the impact of existing and planned onshore wind farms on birds and detail the methodologies applied. We show how the predicted number of collision victims by collision rate models relates to the actual number of victims in a number of existing Dutch wind farms. We also show how we determine collision rates and how we use radar to assess flight behavior in and around wind farms in order to predict the impacts of disturbance. We discuss the impact of coastal wind farms on nearby breeding colonies of gulls and terns as well as on migrating passerines and how results of the field studies have been used to predict impacts of repowering these wind farms. Finally, we also show how such results can be successfully implemented in EIAs, AAs and further legislation procedures, including how we evaluate population level effects in the light of legislation. This overview captures the latest methods for impact assessments of onshore wind farms in the Netherlands.