

Reading guide KEC 4.0

This reading guide provides a short guidance on the The Framework for Assessing Ecological and Cumulative Effects (KEC 4.0) report (Framework for Assessing Ecological and Cumulative Effects (KEC) 4.0 for the roll-out of offshore wind energy and wind farm zones (Éxtra Task 2030+), March 2022, Version Final 4.1). The KEC 4.0 has been conducted for the wind areas described in the North Sea Programme 2022-2027. The Framework for Assessing Ecological and Cumulative Effects focuses on possible cumulative effects on the populations of species to be protected during the construction and operation of offshore wind farms in the period leading up to 2030.

Chapter 1

A short background description is given on the acknowledgement and issue of cumulative effects, the incorporation into the Dutch nature legislation and the identification of knowledge gaps. Furthermore, there is an introduction about offshore wind energy development in the Netherlands and it explains the reasons for the need and use of the Framework for Assessing Ecological and Cumulative Effects (KEC). The KEC is a living instrument, and this becomes clear from the structure and the interdependency between the elements within the structure.

Chapter 2

In chapter one, the interdependency within the KEC structure is touched on. Chapter two goes into more depth about interdependency and showcases why the KEC is a living instrument and should be updated based on new knowledge. On top of this, the KEC roadmap and future developments of the KEC instrument are presented. The KEC roadmap facilitates a more adequate response to political wishes, which is described and elaborated on in this chapter. Based on the wish to react more quickly, the idea of a "KEC for policy making" is introduced and further elaborated.

Chapter 3

This chapter describes the scope and underlying (legal) principles. It begins with a short description of the purpose and scope of the KEC. It is followed by an explanation of how cumulative effects are dealt with in the Dutch nature conservation legislation, Wind Energy Law and the basic approach chosen in this assessment framework. The chapter ends with a brief insight into the review of KEC 3.0 from the Netherlands Commission for Environmental Assessment and the proposed recommendations. Most of the recommendations have been addressed in recent research projects and published articles (Poetiek et al., 2022; Heinis et al.,2022), while other recommendations are not (yet) in scope of the KEC.

Chapter 4

Chapter 4 sets out the generic approach for identifying and describing cumulative effects and how this is done for offshore wind energy. This chapter explains how to address cumulative effects and which aspects should be included in the assessment and which should not. From an ecological and legal perspective, the factors to consider are identified in a step-by-step process. The first step describes the identification of pressures for the activities to be assessed. These activities include the construction, operational phase and decommissioning of an OWF. The second step is to identify sensitive species and habitats, as the identified pressures are relevant when species and habitats are sensitive to them. Step three is to create an inventory of other relevant OWF related activities with effects. Only activities that lead to cumulative effects are considered in this step. Step four is determining the cumulative effects of the activities and bringing together the information from steps one and three. Step five is the actual assessment of the cumulative effects and seeks to establish the extent to which the negative effects of the activity can significantly influence a conservation objective. This is achieved by assessing the effects with thresholds. The final step, step 6, is the reduction of cumulative effects, by proposing and implementing adequate mitigation measures.

Chapter 5

Chapter five examines the assumptions of future OWF used for the scenarios and assessments. It starts with the assumptions about the OWF areas and wind turbine specifications. An overview of the assumptions for the assessment of OWF areas within the North Sea Programme and the different calculation variants is presented regarding the future development of offshore wind. This

is followed by identifying the study area, the southern North Sea. In addition, the study areas for birds, bats and marine mammals are discussed. The chapter continues with an inventory of other relevant activities not included in the calculations. Information about military activities, seismic surveys, and the effects of continuous underwater noise is not included for marine mammals. The activities not included for birds are the disturbance caused by shipping lanes, and effects from dredging, sand-extraction, fishery, oil- and gas extraction. Disturbance of breeding colonies and other negative effects of activities are also not included in the cumulative effects.

Chapter 6

An overview and a first exploration of the descriptors of the Marine Strategy Framework Directive (MSFD) in relation to offshore wind farms is given. The main question to be answered is if there are possible effects on the 11 MSFD descriptors and associated indicators that are currently not yet included or considered as possibilities in KEC 4.0. The chapter concludes that many facets and knowledge gaps in relation to the 11 MSFD descriptors are already included in KEC 4.0 and Wozep research. However, some knowledge gaps remain. The chapter is finalised with recommendations on further exploring a methodology and development directions concerning the effect of offshore wind on the 11 MSFD descriptors.

Chapter 7

It is acknowledged that there are still a considerable number of knowledge gaps relating to aspects of the methodology and ecology. While some gaps have already been filled, this chapter stresses that research is continuously underway to fill in the remaining knowledge gaps and that several finalised studies have resulted in changes in the assumptions for the calculations mentioned in chapter 5. The document finalizes with a short elaboration on considering the ecological carrying capacity after 2030 to maintain enough ecological space in the North Sea ecosystem.