## **Theme 3 – Decommissioning**

***Description***

In the Belgian part of the North Sea, as in neighbouring countries, the seabed is already densely covered with artificial structures, such as foundations and erosion protection. In 2008, for example, the first offshore wind turbines were built in the BPNS with a licence for a maximum of 30 years. Dismantling them therefore still seems a long way off. At the same time, there is growing awareness that the removal of offshore structures could cause more disruption than leaving them (partially) intact, and that the latter can also offer advantages. A subject that is often mentioned here is ecology: after decades, these structures are fully overgrown and have grown into artificial reefs with locally increased production of commercially important species, among other things. Not removing or only partially removing these artificial reefs could have a significant positive impact on the ecology. On the other hand, leaving offshore structures intact may also have undesirable consequences, such as further proliferation of some non-indigenous species and the seizure of space for naturally occurring habitats. However, ecology is only one of the aspects herein: research is already underway into possible uses for aquaculture, alternative sources of energy generation or even tourism, for example. At the same time, there are concerns about the preservation of structures: considerations about the use of space, but also the view from land or nautical safety, for example.

***Discussion points/concrete topics***

1. How can we deal with offshore structures after their deployment? What are the possible solutions: complete dismantling, removing part of them and assigning them another function (maintaining them as artificial reefs, aquaculture, etc.) extending the life of foundations and turbines, recycling, etc. Can we compare with experiences from abroad, what is applicable in Belgium?
2. What are the possible (cumulative) effects of permanently retaining or (partially) removing structures in the North Sea? Can we model or predict them? What are the concerns and challenges (ecological, legal, policy, etc.)?
3. How ecologically valuable is a reef formed on offshore installations? Is preference given to the preservation of the potentially increased biodiversity, or rather the restoration of its original state?
4. During the planning and design phase, how can we anticipate whether or not to dismantle in the future? Is a longer lifespan of structures technically possible? What is needed for flexible design that anticipates a different function after deployment, but also leaves options open?
5. What steps can be taken to enable informed choices about disposal, conservation or alternative reuse?
6. Can multifunctional use of offshore installations offer other insights for conservation or partial or total removal? What is then the effect on the liability for the installations or their remnants that are transferred to another owner?

***Motivation***

Listing and weighing the various possibilities, from complete dismantling to partial preservation to complete preservation, is a subject that cannot be dealt with exclusively by science, policy, NGOs or industry. The question has ecological, technological, legal and socio-economic ramifications and goes beyond the question of how to deal with existing wind farms: when designing and constructing new offshore structures we will also have to consider what their role can be after their deployment and how it can be taken into account in the planning, design and construction phases.

In other words, this is a broad societal issue in which it is necessary to consider what is possible, feasible and desirable, and what the prospects are for achieving this both technically and in terms of policy.