UICN | Comité Français

PLANNING OFFSHORE WIND PROJECTS

7 STRATEGIC RECOMMENDATIONS FOR INCORPORATING BIODIVERSITY INTO ENVIRONMENTAL ASSESSMENT

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PLANNING OFFSHORE WIND PROJECTS

7 STRATEGIC RECOMMENDATIONS FOR INCORPORATING BIODIVERSITY INTO ENVIRONMENTAL ASSESSMENT

This publication synthesises and updates the report "*Analyse de l'intégration des enjeux de biodiversité dans l'évaluation environnementale des projets éoliens offshore"* (Analysis of the integration of biodiversity issues in the environmental assessment of offshore wind projects)[1] published by the IUCN French Committee in 2020.

1. UICN Comité français, 2020. Analyse de l'intégration des enjeux de biodiversité dans l'évaluation environnementale des projets éoliens offshore : rapport-etude-evaluation-environnementale-projets-eoliens-31032021.pdf (uicn.fr)

BIODIVERSITY AND DEPLOYMENT OF RENEWABLE ENERGY IN THE MARINE ENVIRONMENT

THE TWIN CRISES OF CLIMATE AND BIODIVERSITY DECLINE

ENERGY PRODUCTION AND CONSUMPTION PLAY A CENTRAL ROLE IN THE CLIMATE CRISIS

From pre-industrial times to 2019, the global temperature has risen by 1.1°C, and is expected to rise by 1.5°C between 2030 and 2052[2]. Among the human activities that contribute to this change, the use of carbon-based energy for electricity and heat production, through the burning of coal, oil or gas, accounts for 34% of the production of CO2[3], a greenhouse gas that remains in the earth's atmosphere and warms the planet.

The effects of this climate change are now evident, and have serious consequences for biodiversity and the functioning of ecosystems. With regard to the oceans, the IPCC has reported that the consequences of global warming include a rise in the average sea level. This level has already risen by 20 cm in a century, and the melting of glaciers is likely accelerating the process, leading to a potential rise of one metre by 2100 and two metres by 2030[4]. These projections highlight the vulnerability of coastal areas in mainland France and its overseas territories.

The Paris Agreement, adopted in 2015 by the European Union and 191 States, aims to limit the increase in temperature to below 2°C and if possible to 1.5°C. However, the most likely scenario for 2100 predicts a CO2 concentration twice that of the pre-industrial era, and an average temperature rise of 3°C. According to the latest report published by the IPCC in 2022, the temperature would rise by 1.5°C as early as 2030.

The development of renewable energies (RE) responds to the urgent need to reduce greenhouse gas emissions.

These technologies also allow for more localised energy production and help limit dependence on imported fossil fuels. They operate using natural elements, such as the sun, wind, water movement and plant growth. Their development leads to impacts on the areas where the materials are extracted and processed. Their exploitation has an impact on the ecosystems that contain them. This energy transition must therefore consider the impact of projects on biodiversity and related ecosystems to avoid conflict with ecological sustainability.

2. IPCC, 2022: Summary for Policymakers. In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.001
3. *Ibid.*
4. *Ibid.*

In France, the Multiannual Energy Plan (*Programmation pluriannuelle de l'énergie*) targeted a renewable energy share of 23% of gross final energy consumption by 2020. By 2030, these energies should represent 40% of electricity production, 38% of final heat consumption, 15% of final motor fuel consumption and 10% of gas consumption. These targets, although very ambitious, are consistent with the pathway to carbon neutrality in 2050[5].

Since the beginning of the conflict in Ukraine on 24 February 2022, the EU's energy policy has been under geopolitical constraints. In May 2022, the European Commission proposed the REPowerEU plan, which aims to make Europe energy independent of Russian fossil fuels by 2030.

> ***ENERGY TRANSITION MUST CONSIDER THE IMPACT OF ROJECTS ON BIODIVERSITY AND ECOSYSTEMS.***

At the EU level, 40% of energy should be produced from renewable sources by 2030, and energy consumption should be reduced by 36% for final energy consumption and 39% for primary energy consumption by 2030[6].

5. Les énergies renouvelables | Ministère de la Transition écologique (https://www.ecologie.gouv.fr/energies-renouvelables)
6. Adjustment to "Fit for 55": Council agrees on higher targets for renewable energy and energy efficiency - Consilium (europa.eu)

MARINE ECOSYSTEMS ARE SUBJECT TO MULTIPLE PRESSURES WITH CUMULATIVE EFFECTS

The IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) Global Assessment Report on Biodiversity and Ecosystem Services published in 2019 stated that around one million animal and plant species are now threatened with extinction[7]. According to the Red List of Threatened Species for metropolitan France, 32% of marine mammals are threatened or near-threatened[8]. Two thirds of the oceans are subject to increasing cumulative impacts from human activities, the main threats being the overexploitation of natural resources and habitat degradation.

This has resulted in 245,000 km^2 of coastal and marine ecosystems worldwide becoming "dead zones" due to low oxygen levels caused by fertilisers. In addition, 33% of coral reefs, sharks and marine mammals are threatened with extinction and approximately 50% of coral reef cover has been lost since the 1870s[9].

The trends are similar for France, which has the second largest marine area in the world and hosts 10% of the world's species. However, it is also among the ten countries with the most threatened species in the world. Marine and coastal ecosystems in mainland France are subject to anthropogenic pressures with cumulative impacts, including perturbations linked to marine activities. These pressures, which are significant in coastal areas, now extend to offshore ecosystems. The coastlines of mainland France are heavily impacted by the degradation of the seabed due to sediment displacement and noise and chemical pollution, among other impacts[10]. A total of 1,983 globally threatened species are present in French mainland and overseas territories[11]. Only 6% of coastal and marine habitats were assessed as having a favourable conservation status during the period 2013-2018, and 48% of coastal water bodies were assessed as having an average, mediocre or poor ecological status[12]. In 2020, 62% of coral reefs assessed in the Caribbean and Indian Ocean Overseas Territories are degraded. In the Pacific Overseas Territories, the percentage of degraded coral reefs is 30%[13].

7. IPBES, 2019. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. 1148 pages. https://doi.org/10.5281/zenodo.3831673.
8. The Red List of threatened species in France (*fr.*) - https://uicn.fr/liste-rouge-france/
9. IPBES, 2019. *Ibid.*
10. Etat des milieux marins et littoraux. 5. Le rapport de l'évaluation française des écosystèmes. https://naturefrance.fr/etat-des-milieux-marins-et-littoraux#paragraph_1125
11. Liste Rouge des espèces menacées de l'UICN, 2022. https://uicn.fr/liste-rouge-mondiale
12. Naturefrance. Qualité écologique des eaux de surface littorales : https://naturefrance.fr/indicateurs/qualite-ecologique-des-eaux-de-surface-littorales
13. Ifrecor, 2021. Etat de santé des récifs coralliens, herbiers marins et mangroves des Outre-mer français. Résumé pour décideurs. Bilan 2020. 21p.

THE INTERNATIONAL COMMUNITY'S APPROACH TO HALTING BIODIVERSITY LOSS

International efforts are being made to combat these pressures on biodiversity. The Convention on Biological Diversity (CBD) was signed at the Earth Summit in Rio de Janeiro in 1992. It is the first international treaty to state that biodiversity conservation is a "common concern of humankind". Its Strategic Plan for Biodiversity 2011-2020 included the Aichi Targets, several of which relate to the marine environment[14]. In 2015, the member countries of the United Nations adopted the 17 Sustainable Development Goals (SDGs) for 2030. SDG 14 is specifically aimed at preserving aquatic environments. In addition, discussions are underway to establish treaties on the protection of the high seas outside areas of national jurisdiction and to combat plastic pollution.

At the European Union level, the "Birds" and "Habitats" Directives specifically aim to preserve biodiversity within the terrestrial and maritime areas of Member States. They provide a framework for the network of Natura 2000 sites at sea, which cover 35.7% of the marine surface of the exclusive economic zone[15]. In 2000, Europe adopted the "Water Framework Directive" (WFD) with the aim of managing continental waters, maintaining water quality and preserving aquatic ecosystems. The first European legislation specific to the marine environment was adopted in 2008 with the "Marine Strategy Framework Directive". It aims to ensure the conservation and protection of marine ecosystems and to limit the pressure of human activities to a level compatible with Good Environmental Status (GES). This directive defines 11 GES descriptors in this context, which can be used to assess the initial condition of marine waters and to monitor their changes when implementing measures to maintain or restore GES. Although the use of the GES as a reference still faces methodological and scientific issues, its inclusion in strategic assessments and environmental impact assessments would represent amajor step forward, enabling reporting to the European Union and improving management of cumulative impacts in marine waters.

14. Target 6 on fish stocks, Target 7 on aquaculture, Target 10 on coral reefs and other marine and coastal vulnerable ecosystems, Target 11 on marine protected areas. Those targets were renewed in December 2022 with the adoption of the post-2020 global biodiversity framework.
15. Le Réseau européen Natura 2000 : Réseau européen Natura 2000 | Ministère de la Transition Ecologique (https://www.ecologie.gouv.fr/reseau-europeen-natura-2000-0)

The European Union is taking action to protect and restore biodiversity, in particular through the Biodiversity Strategy for 2030, which is aligned with the CBD. This includes the flagship objective of having 30% of Europe's terrestrial and marine environments in protected areas, of which 10% should be strictly protected by 2030, and adopted in France through the National Protected Areas Strategy (*Stratégie Nationale des Aires protégées*). In France, the objective of the highly protected areas (ZPFs) is to strengthen the conservation of biodiversity in terrestrial and marine ecosystems. The relevant marine areas must meet certain conditions in order to be recognised as ZPFs[16].

GOOD ENVIRONMENTAL STATUS IS A BENCHMARK FOR MANAGING IMPACTS IN MARINE WATERS

There are many national versions of international commitments and European directives. France has translated them into its Environment Code (*Code de l'environnement*), which in turn defines the objectives for the marine environment. In 2017, it adopted the National Strategy for the Sea and Coast (*Stratégie Nationale pour la Mer et le Littoral - SNML*). This strategy sets four long-term objectives relating to ecological transition for the marine environment, the development of the blue economy, the GES of marine environments and preservation of the coastline. These four objectives are implemented at the level of coastlines through the development of Sea Basin Strategic Documents (*Documents Stratégiques de Façade - DSF*). These DSFs ensure coherence between economic development and environmental protection objectives.

16. Décret n°2022-527 du 12 avril 2022 pris en application de l'article L. 110-4 du code de l'environnement et définissant la notion de protection forte et les modalités de la mise en œuvre de cette protection forte : https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000045551000

MARINE RENEWABLE ENERGY IN FRANCE AND IN EUROPE

A POLITICAL WILL TO ACCELERATE THE DEVELOPMENT OF RENEWABLE ENERGIES IN EUROPE AND IN FRANCE

To meet the challenges of climate change and improve its energy sovereignty, the European Union and its Member States have committed to developing renewable energy (RE) production, including offshore wind energy. This action is part of the integrated policy on climate and energy and sets targets for 2030 and 2050. RE should represent 32% of production by 2050. Each Member State also has individual targets. France is the only Member State not to have met its 2020 target[17].

Europe has a great potential for offshore wind exploitation. Its installed generation capacity has increased significantly between 2009 and 2019, from 0.6 gigawatts (GW) to 3.6 GW. Wind turbines can either be fixed to the seabed (fixed foundation technology) or rest on a floating base anchored to the seabed (floating wind technology). The choice between these two options depends mainly on the depth of the sea and the environmental issues at the site. Fixed foundation systems are preferred when the maximum depth is less than 50 metres, beyond which it is more difficult and expensive to install foundations and towers. Floating wind turbines, on the other hand, can be installed at depths of 50 to 200 metres.

France has a large theoretical wind energy potential. With 3,500 kilometres of wind-exposed coastline, France has a geographical advantage in this energy sector. The national energy production objectives and activities are determined in the Multiannual Energy Plan (*programmation pluriannuelle de l'énergie, PPE*), on which the Integrated National Energy and Climate Plan is based. The current PPE (2019-2028) sets France on a path to carbon neutrality by 2050. To achieve this, it proposes to reduce the consumption of fossil fuels, with a 20% reduction in primary consumption from 2012 levels by 2023, and 35% by 2028. It plans for a renewable electricity production capacity of 73.5 GW in 2023 and 101 to 113 GW in 2028, i.e. double the 2017 level[18].

As regards offshore wind power, its objectives are in line with those of the Energy Transition for Green Growth Act (*Transition énergétique pour la croissance verte*), which has set a target of 40% renewable energy in the national electricity production mix by 2030.

17. Les énergies renouvelables dans l'Union Européenne : Les énergies renouvelables dans l'UE- Touteleurope.eu
18. PPE, résumé 2020 : Programmations pluriannuelles de l'énergie (PPE) | Ministère de la Transition écologique : https://www.ecologie.gouv.fr/sites/default/files/20200422%20Synthe%CC%80se%20de%20la%20PPE.pdf

An increase in offshore wind power to 2.4 GW by 2023 and to between 5.2 and 6.2 GW by 2028 is planned. At the time of the adoption of the Sea Basin Strategies, the PPE decree was still in preparation, resulting in the targets not being specified in the strategic objectives. The National Strategy for the Sea and Coast was validated in 2017, but it is at the level of the Sea Basin Strategic Documents (DSF) that the regulatory obligations for strategic environmental assessment (SEA) apply. When the DSFs were produced, they did not incorporate the zoning required to meet the objectives of the PPE relating to marine renewable energy with sufficient detail, and SEAs have therefore been unable to take their impacts into account, nor the cumulative impacts with those of other activities.

IMPACTS OF OFFSHORE WIND TURBINES ON BIODIVERSITY

The impact of offshore wind power on biodiversity is defined by the pressure of this technology on biodiversity, correlated with the risk of interaction between biodiversity and wind. The potential impacts of offshore wind power are associated with the type of structure, whether it is a floating or a fixed structure, and attachments. They are of a physical nature (physical disturbance of the seabed, modification of hydrological conditions, loss of or changes to marine habitats, extraction of substrate, noise and vibrations, etc.), chemical (inputs of hazardous substances, organic matter, metallic and synthetic compounds, etc.) and biological (biological disturbance of species, collisions, obstacles to movement, etc.). These pressures impact benthic habitats (the seabed) as well as all species of marine and terrestrial birds, marine mammals, marine turtles, fish, crustaceans and other underwater fauna and flora.

Avifauna (marine and terrestrial) and chiropterans are primarily impacted by the risk of collision and by pressure variations around the blades, but also by disturbance due to the loss of favourable habitats, modification of migration corridors, noise and electromagnetic disturbances and the release of polluting substances. There are few impacts during construction or decommissioning, with most impacts occurring during the operational phase.

Fish and benthic fauna are sensitive to disturbance and therefore impacted by habitat modification, noise and electromagnetic disturbance, release of pollutants, underwater background noise, local modification of currents caused by the installation of structures in the water column. They can also be impacted by the deposition of particles on the wind turbines, the toxicity of the paints used for the turbines, species colonisation on the installations (concrete, steel) which favour opportunistic species (decrease in species diversity) or invasive exotic species, and the resuspension of certain materials, which increases turbidity. This turbidity reduces phytoplankton development and photosynthesis, which affects the growth of macro-algae, and can lead to the clogging of fish gills. Benthic fauna is mainly impacted during the construction and decommissioning phases, but also during the operating phase due to its effect of increasing the uniformity of species composition.

Suspended particles may contain various pollutants, such as heavy metals or polycyclic aromatic hydrocarbons, which may be dispersed in the water and contaminate the benthic fauna. Wind turbines cause sediment displacement, which impacts macrobenthic communities. A study of the Norther offshore pilot project in the North Sea, Belgium, found a decrease in the average abundance and diversity of benthic species compared to areas without wind turbines[19].

Marine mammals and sea turtles are impacted during the construction, operation and decommissioning phases. This is particularly the case with noise pollution (underwater noise), which leads to behavioural disturbances and risks altering the demography of these species. This noise must be avoided or, failing that, reduced as much as possible since it is an impact that cannot be compensated for[20]. These species are also impacted by disturbance from construction, maintenance vessels and electromagnetic disturbance (especially cetaceans and marine turtles). These impacts are defined as localised, temporary (maximum 1 year) and weak.

Impacts on benthic habitats occur during the operational phase, with local modification of currents by structures in the water column, concentration and colonisation by opportunistic species and deposition of particles by the decrease in water velocity downstream of the turbines, among others. The introduction of permanent artificial structures on the seabed and in the water column can create new habitats for many species if they are designed with the existing ecosystems in mind (ecodesign). For floating wind turbines, the effects associated with foundations are replaced by those associated with anchors and mooring lines. These impacts continue for an average of 25 years (the average lifetime of an offshore wind farm).

At the time of writing its report in 2020, the IUCN French Committee did not have access to any published studies on the impacts of offshore wind farms on biodiversity in France. This list of impacts is therefore not exhaustive and comes from other European studies. France has its own particular ecological context given its location as a migratory crossroads. The OFB's integrated Life Marha project will publish in 2023 a section on the impacts of offshore wind farms on biodiversity, treating this subject in a national context and defining its generic impacts on the different biodiversity components in relation to the Sea Basin Strategic Documents. Future impact modelling studies should be carried out at the ecosystem or socio-ecosystem scale, and should address food web effects.

19. Degraer, S., Brabant, R., Rumes, B. & Vigin, L. (eds). 2021. *Environmental Impacts of Offshore Wind Farms in the Belgian Part of the North Sea: Attraction, avoidance and habitat use at various spatial scales. Memoirs on the Marine Environment*. Brussels: Royal Belgian Institute of Natural Sciences, OD Natural Environment, Marine Ecology and Management, 104 pp.
20. MTECT, 2020. Préconisations pour limiter les impacts des émissions acoustiques en mer d'origine anthropique sur la faune marine : Guidepreconisationspourlimiterlimpactdesbruitssous-marinssurlafaunemarine.pdf

STUDY OBJECTIVES AND METHODOLOGY

A STUDY BASED ON A CONSIDERATION OF THE CUMULATIVE EFFECTS OF HUMAN ACTIVITIES ON MARINE ECOSYSTEMS

The IUCN French Committee's study aims to contribute to the improvement of environmental assessment practices for offshore wind projects. Few maritime activities in France are subject to a full environmental assessment because they are not considered projects in the context of the Environment Code. Thus, activities such as fishing, transport or marine farming are only subject to environmental assessment when they involve the construction of infrastructure.

The IUCN French Committee promotes an integrated approach to consider the cumulative effects of human activities on the one hand and their overall impact on ecosystems on the other. Indeed, the distinctive feature of offshore wind projects is that they are installed in areas already used by other economic activities, which makes a detailed analysis of cumulative impacts all the more important. Experts from the IUCN French Committee, with the help of partners, have analysed a sample of environmental impact studies of French marine renewable energy (MRE) projects[21]. The analysis highlights the main impacts addressed and identifies strengths and areas for improvement in biodiversity impact assessment. The methodology followed is that proposed in the Ministry of the Environment's guide to assessing the environmental impacts of offshore wind farms[22]. Furthermore, the analysis was conducted taking into account the evolving political and legal landscape in the years between calls for tenders and project start. The study focused on wind energy and specifically on the implementation of the avoid, reduce and compensate (ERC) sequence and compensatory measures offshore. Four projects were selected: two fixed foundation wind farm projects (Yeu-Noirmoutier and Saint-Nazaire) and two floating wind farm pilot projects (Groix-Belle-Ile and Gruissan).They are intended for political decision-makers involved in issues related to MRE (elected officials and administration) and for stakeholders in the MRE development sector: project bearers, developers, consultancy firms, expert organisations and biodiversity protection associations.

> ***THIS WORK HAS LED TO THE FORMULATION OF SEVEN RECOMMENDATIONS WHICH ARE PRESENTED HERE.***

21. The documents studied include impact studies and associated documents made public by the project leaders on environmental issues, public exchanges between them, the investigating departments and experts, submission from the Environmental Authority (EA), submission from the National Council for the Protection of Nature (CNPN), reports from public debates, reports from public enquiries and submission from specialised commissions with environmental competence: CODERST (*Conseil Départemental de l'Environnement et des Risques Sanitaires et Technologiques*) and CDNPS (*Commission Départementale pour la Nature, les Paysages et les Sites*).
22. MEEM, 2017. Guide d'évaluation des impacts sur l'environnement des parcs éoliens en mer, Edition 2017 : guide_etude_impact_eolien_mer_2017_complet.pdf

THE PROJECTS STUDIED

1 SAINT-NAZAIRE OFFSHORE WIND FARM

Commercial farm developed by
EDF Renewables and ENBRIDGE

Number of wind turbines
80 installed on monopiles

Year of the call for tenders
2012

Power of each wind turbine
6 MW
Power of the wind farm
480 MW

Surface area of the wind farm
78 km²

Date of commissioning
07/10/2022

Geographical position
off the Loire-Atlantique coast

2 OFFSHORE WIND FARM OF THE YEU AND NOIRMOUTIER ISLANDS

Commercial farm developed by
ENGIE, EDP Renewables and SUMITOMO

Number of wind turbines
62 on 4-pile foundations

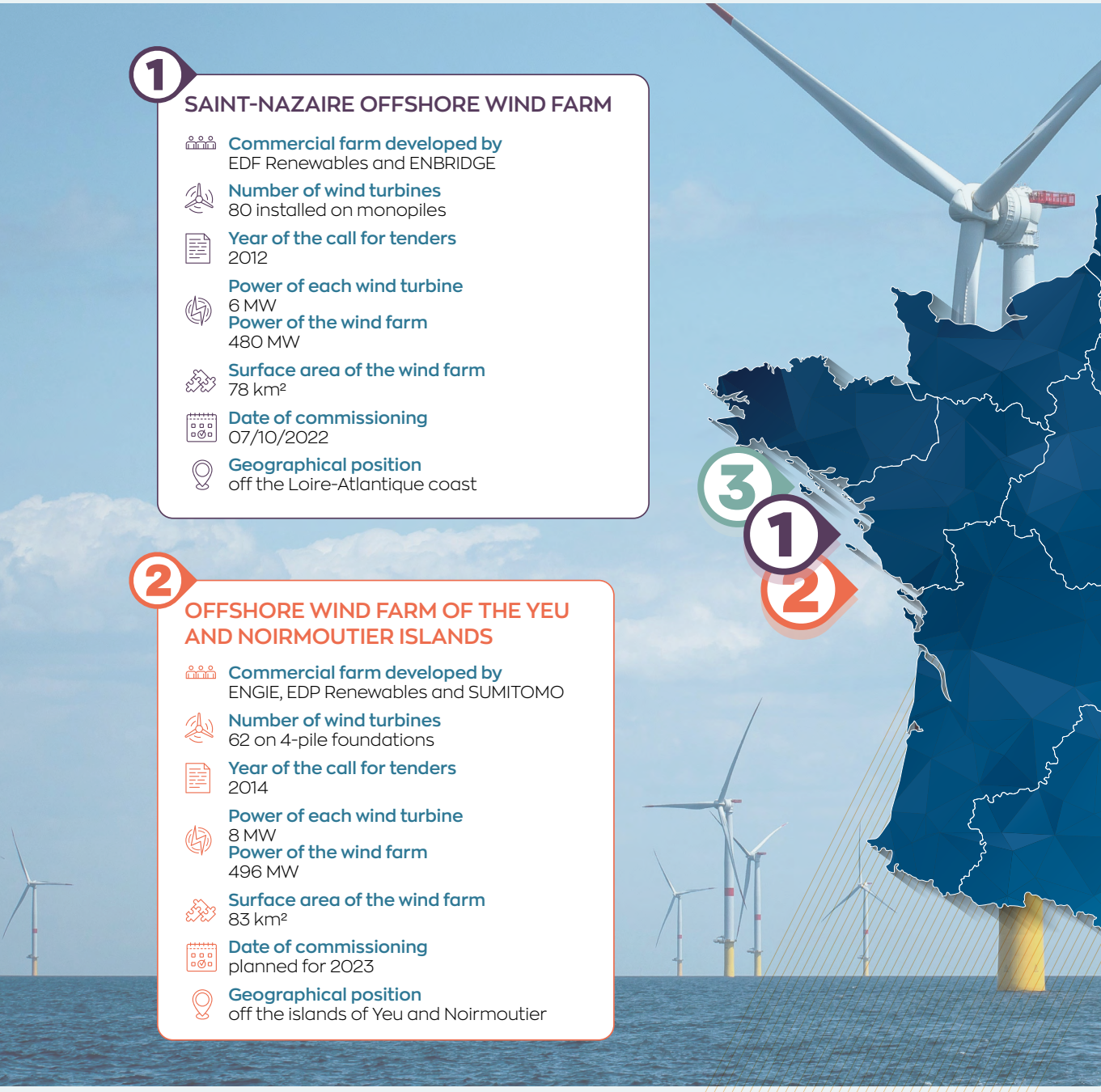
Year of the call for tenders
2014

Power of each wind turbine
8 MW
Power of the wind farm
496 MW

Surface area of the wind farm
83 km²

Date of commissioning
planned for 2023

Geographical position
off the islands of Yeu and Noirmoutier



3 THE GROIX-BELLE-ÎLE FLOATING WIND FARM

Pilot wind farm project developed by
EOLFI, CGN Europe Energy, Banque des Territoires and ADEME

Number of wind turbines
3 floating wind turbines with catenary-type anchorage

Year of the call for tenders
2016

Power of each wind turbine
9,5 MW
Power of the wind farm
28,5 MW

Surface area of the wind farm
14,3 km²

Date of commissioning
project abandoned in November 2022

Geographical position
more than 20 km from Pointe des Poulains, Belle-Ile (Morbihan), off the islands of Belle-Ile and Groix

4 EOLMED PROJECT IN GRUISSAN

Pilot wind farm project developed by
Quadran énergies marines, Bouygues TP, Ideol and Senvion

Number of wind turbines
4 floating

Year of the call for tender
2016

Power of each wind turbine
6,2 MW
Power of the farm
24,6 MW

Surface area of the farm
25,1 km²

Date of commissioning
-

Geographical position
off Port-la-Nouvelle

SUMMARY OF THE ANALYSIS

UMMARY OF THE ANALYSIS OF THE IMPACT STUDIES CONDUCTED ON THE 4 PROJECTS

ENVIRONMENTAL IMPACT ASSESSMENTS

The main stages of the environmental impact assessments studied are the identification of the initial environmental status, which involves the definition of the study area, the choice of the consultancy firm, the acquisition of knowledge through the literature, field surveys, modelling to measure the physical components of the environment, the assessment of environmental issues and impacts on biodiversity, and finally the lists of cumulative impacts.

These impact studies are generally of good quality, which is very encouraging given the infancy of the sector and the limited knowledge available. This is due to the involvement of the project owners, the overall competency of the consulting firms and the requirements of the relevant authorities.

THE AVOID, REDUCE AND COMPENSATE SEQUENCE

Te analysis of the ERC sequence focused on the measures concerning marine biodiversity. Avoidance measures were proposed by all four projects. These include locating the projects outside areas of high biodiversity concern, reducing the number of wind turbines and increasing their power per unit. Reduction measures relate to the light pollution that affects avifauna and impacts marine mammals. Examples of proposed compensatory measures are the repopulation of gulls and the creation and management of nesting sites for Laridae shorebirds.

In general, there appear to be fewer ERC measures relating to marine areas compared to the number of terrestrial ERC measures. This is probably due to far greater knowledge of the

issues, effects and impacts for terrestrial projects than is the case for marine projecs. The avoidance and reduction measures appear to be fairly generic and in line with modern industry standards rather than project-specific. Many of these concern issues other than the natural environment and some compensatory measures do not correspond to the definition of compensation (ecological equivalence). As such, they may be legally contestable.

The application of the ERC sequence includes specific monitoring of the impacts and measures implemented, with documented protocols, but the references are not always specified. All four projects identified impacts on protected

species, but only three requested exemptions from the prohibition on the destruction of protected species. Among the consultancies, there are different interpretations of the assessment of residual impacts and the resulting ecological compensation when these are deemed significant, as well as of the potential negative impacts on protected species.

THE VIEWS OF THE ENVIRONMENTAL AUTHORITY

The views of the Environmental Authority (AE) were analysed in summary form rather than project by project. The study has taken into account the fact that the opinions formulated on the first projects may have been used by the more recent projects. The EA's recommendations are addressed to the project owners and the State and express regret that the development of MRE has not been followed by a research effort led by the State. Another important finding is the failure to consider the cumulative impacts of the Groix-Belle-Ile project on fishing activities between Groix and the Île d'Yeu and port activities of Nantes-St Nazaire, an assessment not required by the regulations but deemed necessary

PUBLIC DEBATE AND ENQUIRY

A debate was held for the installed wind farms, and a preliminary consultation for the floating pilot projects. Few contributions to these debates addressed environmental issues, except for those from nature conservation organisations with a sound knowledge of local issues. On the other hand, the debate undoubtedly contributed to the transfer of environmental knowledge to the public, in addition to making the results of the impact study accessible to them. The purpose of the public enquiry is to consider the interests of third parties in decisions likely to impact the environment. Decisions must then be made by the project owner with consideration given to the comments and submissions received. This stage is the last opportunity to highlight environmental issues, this time with the benefit of the full impact study.

CONCLUSIONS

The analysis carried out confirms the complexity of the studies, which often require the involvement of a large number of experts. The projects considered all of the environmental assessments and almost all of the EA recommendations in their design and development.

The main differences in the methods of identifying the issues are related to the somewhat different biogeographical zones (Atlantic Ocean and Mediterranean Sea), to specific local issues and to the different effects depending on the wind turbine technology used (floating or fixed foundation). Nevertheless, the four impact studies highlight the same overall impacts on biodiversity and comply with the regulations in terms of content and form, which makes them comparable.

The main environmental issues related to biodiversity for all projects concern benthic settlement and habitats, marine mammals, avifauna and, to a lesser extent, chiropterans. The impacts of fixed foundation wind farms are thoroughly documented, whereas those of floating wind farms, a very recent technology, less so.

It appears that most of the significant impacts on biodiversity could be reduced to a low residual level by simple geographical placement, by avoiding high-value areas. The only medium and high residual impacts after this geographical avoidance phase concern avifauna, as noted in the impact studies for the four projects. Compensation measures were therefore proposed, and exemptions from the ban on impacts on protected species were requested by the relevant authorities for the projects studied.

The broad impacts of wind energy on marine and coastal biodiversity are therefore mostly known, identified and assessed. However, it is essential that studies are able to add detail to these general impacts at each site and to assess their cumulative impacts. These cumulative impacts must include all offshore activities, since even if the impacts linked to wind power are limited, by adding to the existing impacts, wind farms can further damage the Good Ecological Status of ecosystems.

RECOMMENDATIONS

RECOMMENDATIONS OF THE IUCN FRENCH COMMITTEE

The IUCN French Committee stresses the importance of energy savings and efficiency, which are the primary means to avoid the impacts of marine renewable energy on biodiversity. Our seven recommendations reflect the importance of taking an ecosystem approach to MRE, the paradigm shift towards taking cumulative impacts into account, and the need for planning at the scale of the Sea Basin Strategic Documents.

The planning for offshore wind energy aims to provide a framework and allow the development of MRE production capacity, provided that the cumulative impact of human activities does not threaten the achievement of the environmental objectives set for an area (Good Environmental Status, specific conservation objectives)[23]. The recommendations set out below are aimed at effective implementation of planning, which is the main avenue for effectively avoiding some of the impacts of MRE on biodiversity.

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23. Combined definitions of the Directive establishing a a framework for maritime spatial planning 2014/87/UE and of the Marine Strategy Framework Directive 2008/56/CE.

1. FINANCE STRUCTURED STUDY AND RESEARCH PROGRAMMES ON THE SCALE OF THE SEA BASINS

Initiate studies and research programmes on any broad region likely to host wind farms, in order to assess all environmental issues, particularly biodiversity issues.

Ensure, through regulations or contracts, that marine data collected in the framework of publicly funded research programmes is made immediately available.

Take advantage of the development or revision of the Sea Basin Strategic Documents to conduct the studies or launch the research programmes necessary to fully understand the environmental issues at the scale of each coastline.

Utilise the Offshore Wind Observatory (*Observatoire de l'éolien en mer*) to fill the gap in existing knowledge on this subject, consolidate and disseminate studies and data and define and manage a data acquisition programme.

Work alongside operational wind farms to ensure that they contribute to the acquisition of knowledge about the marine environment and maritime activities.

The impact studies analysed demonstrated an inadequate level of knowledge of the marine environment. Numerous gaps have been identified in the knowledge of marine and terrestrial avifauna, chiropterans, and the impacts of human activities on the marine environment. At present, it is difficult to obtain knowledge about the area covered by a project before it is launched. These gaps underline the importance of acquiring additional knowledge. This requires a pooling of knowledge with an ecosystem rather than a sectoral approach. Strategic planning makes it possible to bring existing knowledge together and thus to conduct studies and formulate the research needs of each coastline.

FURTHER STEPS

- A body of scientific knowledge that can assist stakeholders, particularly at the planning stage, would be beneficial.
- Scientific advisory boards associated with specialised commissions dedicated to wind energy would be a significant step forward.
- Ideally, these commissions should be established on a long-term basis, and be cross-sectoral and transdisciplinary.

2. CAPITALISE ON EXISTING KNOWLEDGE AND DATA ACCESSIBILITY

Capitalise on existing knowledge, particularly public knowledge, and support pilot projects so that they contribute to the development of knowledge of the marine environment and associated impacts.

Ensure the consolidation and use of data collected from the environmental monitoring of offshore wind farms.

Use the same protocols for the environmental monitoring of wind farms as for the monitoring programmes under the Marine Strategy Framework Directive or the Water Framework Directive. This will allow environmental monitoring to contribute to broader surveillance of the environmentt.

Pool, via the Offshore Wind Observatory the acquisition of data as well as its validation, management and availability to the public, users and researchers.

Even before planning studies and research, it is necessary to ensure that existing knowledge is accessible. Regulations require project developers to make some of the information gathered during impact studies (e.g., Depobio) available, but not to public organisations or to researchers. Pilot projects provide an opportunity to gain a better understanding of environmental impacts, and therefore the knowledge gained should be exploited. It is essential to promote the contribution of wind farm projects to the acquisition of knowledge on the marine environment through, for example, accompanying measures proposed to project owners.

FURTHER STEPS

- The wind farms soon to be commissioned will produce a large quantity of data, which should be capitalised on.
- This capitalisation must be accompanied by summaries, and by the dissemination and exploitation of the results obtained.

3. ESTABLISH A STANDARDISED METHODOLOGICAL FRAMEWORK FOR THE EVALUATION AND MONITORING OF PROJECTS

Establish a reference framework for environmental information acquisition and processing protocols in impact studies, and develop or recommend technical standards (ISO, CE, AFNOR) for these protocols.

Evaluate the numerical models used in environmental assessments of plans, programmes and projects, and develop guidance and recommendations for their use.

Conduct research to establish reference scales for the effects of wind farms, according to the sensitivity of species and ecosystems.

Propose a methodological reference framework to ensure consistent impact assessment between projects[24], and if possible between projects or activities with the same effects concerning the same environmental issues.

Adapt the regulations on the environmental assessment of maritime projects to the objectives of the Marine Strategy Framework Directive. Make reference to Good Environmental Status, and adopt an ecosystem approach to impact assessment and the assessment of cumulative impacts.

Impose environmental assessment, under the same criteria, on all maritime and land-based activities that contribute to collective pressure on the marine environment.

Develop arrangements for the pooling of skills within government authorities, and particularly among the regulatory authorities, to cover the needs related to the assessment of wind farm projects and other maritime activities.

24. Such as those developed by MTE- CGDD in the guide on the standardised sizing of ecological offsets: https://www.ecologie.gouv.fr/sites/default/files/Approche_standardis%C3%A9e_dimensionnement_compensation_%C3%A9cologique.pdf

There are no common frameworks for assessing the significance of environmental impacts, nor are there common standards for the acquisition of data in the course of impact studies. This is also the case for the classification of issues and impacts (negligible, significant, important, etc.), which is not based on recognised criteria, even though it affects authorisations. A reference framework, in the form of a regularly-updated technical guide, could list the recommended protocols. To achieve this, modelling tools are essential and will make it possible to assess an increasing number of impacts based on observation data. Good Environmental Status is largely invisible in marine environmental assessment, where the regulations remain both generic and based on terrestrial approaches. Impact studies adopt the traditional compartmental approach, which does not appear to be best suited to impact studies of marine projects. Indeed, impact studies still fail to assess impacts at the ecosystem level under these approaches.

FURTHER STEPS

- The biological models mentioned above can be coupled with socio-economic models to conduct cost-benefit analyses at the planning and project levels.
- There should be a framework for quantifying impacts, just as there is for conducting their assessment.

4. IMPROVE THE CLARITY OF THE ERC SEQUENCE

Summarise the implementation of the avoid, reduce and compensate (ERC) sequence for each environmental issue, with the benefits of each stage of the sequence, the follow-up measures and showing the associated residual impacts.

Integrate "standard" measures of the ERC sequence, which should be applicable to all projects, into internationally recognised **technical standards** (EC, ISO) and include these standards in the terms of reference of calls for tender.

Consider standardising and mandating certain avoidance and reduction measures as well as their monitoring, which would appear to be applicable to all projects.

Consider ecological compensation at the planning stage (in the Sea Basin Strategic Documents), within the framework of an integrated ERC sequence, and propose, where possible, 'compensation by supply from an offset operator' at the scale of the seaboard, and adapted to the major environmental issues.

When relevant at the project level, **pool compensation measures** between the various relevant activities to ensure their effectiveness and to allow for monitoring.

Further develop ecological restoration initiatives to ensure relevant ecological compensation.

Integrate the treatment of impacts relating to heritage issues, including protected species, into the ERC sequence **in a more transparent manner**.

Share a frame of reference for ERC measures among the **regulating authorities** for the seaboard.

Improve the quality of applications for exemptions for protected species, and clarify the conditions for applying for and granting these exemptions.

Systematically implement cost-benefit analysis in environmental assessment, with standardised methods that can be used at both the planning and project levels.

The ERC sequence is sometimes confusing due to several technical aspects and there is still limited thought given in France to its implementation in a marine context. To be well adapted to the marine environment, it must adopt a broad approach, while taking into account the different natural and legal characteristics of the sea. The results of the application of the ERC sequence should be presented in a synthesised form, particularly in the non-technical summary of the impact assessment. Few environmental avoidance and mitigation measures are proposed by the project proponents in the impact assessments. The avoidance measures proposed by the four projects studied are similar and thus generic. This is also the case for some of the reduction measures. Ecological compensation aims to ensure that residual impacts deemed significant are offset by appropriate measures in accordance with the principle of ecological equivalence. This compensation is very weak when implemented at sea and the measures proposed are scarce or of little relevance. Compensation through supply from an offset operator[25] is an important avenue because it anticipates negative effects and makes it possible to generate quantifiable compensatory gains prior to impacts (and thus to secure equivalence). Finally, the treatment of impacts on protected species is poorly integrated into the ERC sequence, and the level of threat to species, as identified by the impact studies, is interpreted in a highly variable manner by the regulatory authorities.

FURTHER STEPS

- Two tables could provide a useful summary of the ERC sequence: one with a classification of the sequence by environmental issue and a second where the ERC measures would be classified by nature.
- The avoidance or reduction measures specific to each project should be prioritised, for example with regard to impacts on birds and chiropterans.
- Ecological compensation should be better studied and prescribed at the planning level for impacts of the same nature, i.e., at the ecosystem level.
- A biodiversity loss/gain ledger would make it possible to measure ecological equivalence in units of biodiversity.
- The online guide developed by MTE - CGDD on the standardised sizing of ecological offsets[26] could be usefully applied.

25. Sites naturels de compensation en mer : état de l'art et perspectives d'application contextualisées, Sciences Eaux et Territoires, n°38, 2022 : https://revue-set.fr/article/view/7054
26. CGDD, 2021. Approche standardisée du dimensionnement de la compensation écologique. Guide de mise en œuvre. Ministère de la Transition écologique, Mai 2021. 149p.

5. CHANGE THE PARADIGM FOR ASSESSING CUMULATIVE IMPACTS

Approach the reduction of cumulative impacts **at the planning level** through an ERC approach encompassing all projects and activities. One approach could be to study the option of sharing efforts to reduce cumulative impacts more equitably between activities in all areas, both at the scale of the Sea Basin Stategic Documents and at the level of projects, in accordance with Good Environmental Status.

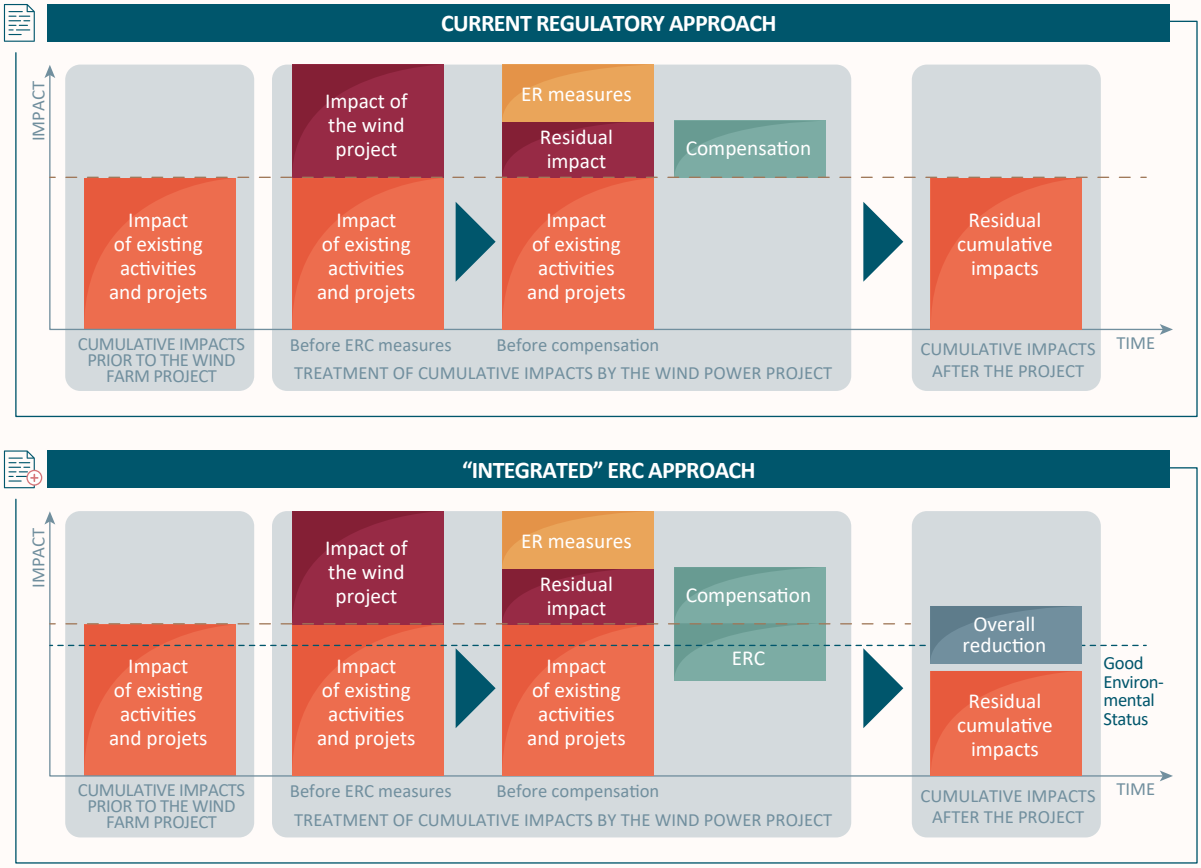
Develop an integrated and forward-looking approach to cumulative impacts, including all projects and activities envisaged across all sectors:

- Develop ecosystem modelling at the scale of the Sea Basin Strategic Documents, the "macrozones" earmarked for wind power projects.
- In time, integrate socio-economic issues into the modelling in order to assess the economic impacts of ERC measures for environmental purposes and *vice versa*.

Use Good Environmental Status descriptors to compare the impacts of human activities.

Cumulative impacts are insufficiently assessed and addressed by current regulations. An environmental assessment must assess the cumulative impacts of all projects with a view to limiting or reducing them overall. The reduction of impacts at the project level is necessary but insufficient to meet this ultimate objective. The treatment of cumulative impacts currently has several limitations, notably the restriction to projets[27], which leads to the exclusion from the assessment of all diffuse activities not involving permanent occupation and/or environmental authorisation involving an impact study. The legal and operational logic behind the current approach is to rely on existing studies, without imposing the assessment of pre-existing activities on the latest project submitted. This approach has environmental limitations, in that significant pre-existing impacts can be overlooked. These regulatory limitations are particularly unfortunate when dealing with biodiversity, as the effects of all projects and activities combine in a complex manner. Their cumulative impacts should therefore be assessed at the ecosystem scale and against the Good Environmental Status (GES) to ensure compatibility. The development of an integrated and forward-looking approach to cumulative impacts is a challenge that must be addressed. None of the projects studied has implemented a methodology for assessing cumulative impacts, which are assessed on an expert basis in each case. Ecosystem modelling methods are being developed and offer promising avenues for improving the assessment of these impacts. Combined with socio-economic modelling, they should be able to determine the best approach to reducing the overall cumulative impacts while limiting the socio-economic impacts for each affected sector.

27. Within the meaning of the Directive 2011/92/UE, "project" means the execution of construction works or of other installations or schemes.



FURTHER STEPS

- An example of ecosystem modelling is the "TROPHIK"[28] which aims to conduct the first analysis of cumulative impacts with regard to the Good Environmental Status indicators of the Trophic Network Descriptor within the Marine Strategy Framework Directive.
- One of the limitations of the current regulatory approach is that it imposes responsibility for limiting cumulative impacts on the latest project, since it is ultimately that project alone that is required to adopt the measures necessary to limit the impacts to an environmentally acceptable level. All sectors should be expected to contribute, rather than simply the most recent sector in a territory (in the case of the projects examined here, the wind power sector).

28. Modelling the role of offshore wind farms in modifying the functioning of coastal food webs and cumulative impact: https://www.france-energies-marines.org/projets/trophik/

6. STRENGTHEN THE QUALITY OF STRATEGIC ENVIRONMENTAL ASSESSMENTS

OF PLANNING DOCUMENTS FOR MARINE ACTIVITIES, INCLUDING THE SEA BASIN STRATEGIC DOCUMENTS

Integrate MRE into strategic planning (Sea Basin Strategic Documents) by including a precise, long-term delimitation of the "macrozones" intended for MRE and, in the short term, of the "microzones" which will be open to calls for tender.

Conduct a full strategic environmental assessment of the Sea Basin Strategic Documents, taking into account all maritime activities and associated pressures, in order to focus calls for tender on areas (macrozones and microzones) where environmental and cumulative impacts have already been assessed.

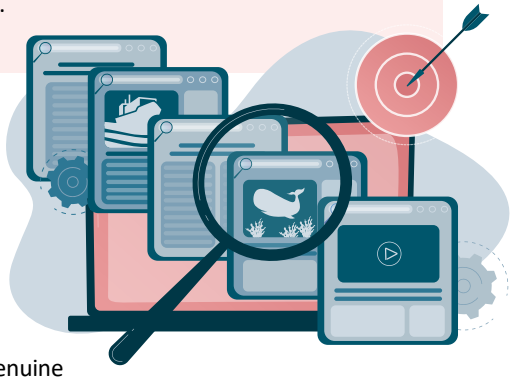
Implement the ERC sequence at the Sea Basin Strategic Document scale in order to attain Good Environmental Status and, if necessary, determine priorities between activities in the macro zones.

Explicitly declare, in the National Strategy for the Sea and Coast, the primacy of the protection of biodiversity over the development of activities in marine protected areas.

Explicitly classify areas of overlap between wind power macrozones and marine protected areas into one of the three categories "compatible", "incompatible", and "frozen"[29] » in each Sea Basin Strategic Document. This would be on the basis of the strategic environmental assessment and by requiring compatibility to comply with the objectives of biodiversity protection. This idea is linked to the European REPowerEU plan and the concept of "go-to-areas"[30].

Include the analysis and risk management plan in the impact assessment. If other activities are present, risk avoidance and reduction measures should be shared with them, in order to limit the additional risks associated with the wind project and thus reduce the overall maritime risk.

As most risks are associated with the sharing of space between activities, their assessment should be undertaken at the planning stage, and avoidance measures implemented where possible at this stage.

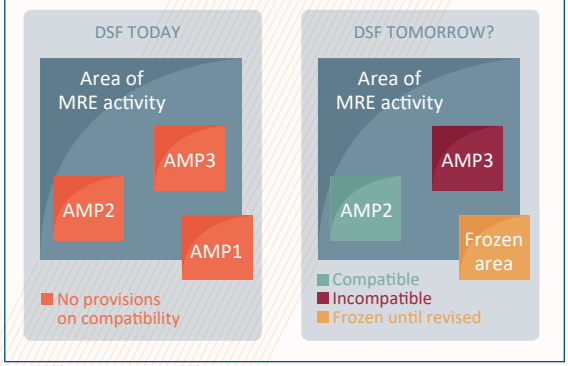


In France, a Sea Basin Strategic Document (DSF) defines both the conditions of use of the sea by various activities and the environmental objectives to be achieved. Good Environmental Status is achieved when cumulative impacts are controlled, which is one objective of strategic planning. Planning is a key step for avoidance and is all the more important as in the four projects studied, opportunities for avoidance are mostly linked to strategic planning. However, the DSFs are not detailed enough to allow for a genuine strategic environmental assessment.

29. Compatibility to be reassessed at a later stage (the need for more data, changing environmental conditions, important areas for biodiversity, proposed marine protected areas)
30. JRC, Go-to areas for wind and solar: https://joint-research-centre.ec.europa.eu/energy-and-industry-geography-lab/go-areas-wind-and-solar_en

In the context of an integrated environmental assessment, the ERC sequence should be implemented at two scales: at the scale of the Sea Basin Strategic Documen t, where the ERC sequence would be applied during the strategic environmental assessment, and at the project scale, where it would first be applied to the project alone and then to the cumulative impacts, where the measures would concern all of the pressures contributing to these impacts. The importance of associating compensatory measures at the planning and Sea Basin Document level is reinforced by the fact that it is at this level that compensatory measures could usefully be proposed.

ASSESSING THE COMPATIBILITY OF MRE IN MPAS



The strengthening of environmental assessment is crucial for marine protected areas (MPAs). MRE farms may be located in MPAs, which may threaten their protection objectives, especially for Natura 2000 sites and Marine Nature Parks. These two categories of site do not exclude human activities, but in the event of conflict, biodiversity protection objectives take priority. However, today no strategy or policy genuinely addresses the issues of coexistence, compatibility or coherence between activities. It is therefore at the level of the Sea Basin Strategic Documents that the compatibility between MPAs and wind farms must be specified.

The final step in strengthening strategic environmental assessment is risk analysis. Impact assessment and risk assessment have distinct objectives but must be consistent. Even if there is a difference in nature between a risk and an impact, their consequences may be comparable and result in similar environmental damage. Conflicts between risk reduction and environmental impact reduction can arise and it is at the strategic planning level that they should be addressed. Since 10 August 2018, the ESSOC law requires that MRE projects and their connection be subject to a public participation process even before the operator is chosen, which makes it possible to integrate the public at an early stage, in particular so that it can participate in the choice of location. This includes consideration of the associated risks and impacts.

FURTHER STEPS

- Integrated planning could make it possible to optimise, at the scale of Sea Basins, avoidance measures, certain reduction measures and particularly compensation measures, which could be pooled beyond the scale of the project.
- In an “integrated” ERC sequence, projects could have an offer of compensation defined at the ecosystem level and addressed at the broad scale of the Sea Basin Strategic Documents, which would clearly differ from the system for compensation used by land-based projects. Offshore compensation sites would represent the sector's contribution to the establishment of High Protection Zones.

7. IMPROVE THE GOVERNANCE OF ENVIRONMENTAL IMPACT ASSESSMENTS

THROUGH PUBLIC INVOLVEMENT AND DIALOGUE BETWEEN STAKEHOLDERS

Generalise the **assent** procedure for the preliminary scoping for marine energy projects, consulting the Environmental Authority, organisations and environmental expert associations. During this scoping, formulate the Good Environmental Status at the project level so that it can serve as a benchmark in the ERC sequence.

During this scoping exercise, specify the scales for assessing the sensitivity and impacts of **the most important issues**, which will be used by the relevant departments to analyse the results of the impact study and the application of the ERC sequence.

Submit the scoping document to public debate and amend it, if necessary, to include environmental issues that have emerged during the debate.

Consider the possibility of involving commissions and councils competent in biodiversity matters, non-institutional experts, and associations representing environmental issues during the preliminary scoping consultations.

Consider the possibility of financial remuneration for non-institutional experts participating in the environmental assessment and monitoring of projects, in exchange for a contractual commitment on their part.

Use the public debate to formally identify the stakeholders who wish to be involved in the environmental assessment, and present the environmental information as fully as possible.

In the impact study, **systematically present in a specific chapter** the formal answers to all environmental questions raised by the public.

Ensure that the public is involved in the environmental monitoring of projects (participation in monitoring committees, dissemination of monitoring information).

Systematically publish all submissions on the environmental aspects of projects (councils, committees, commissions, agencies, etc.).

Better adapt impact studies to consultation and research using digital tools.

Consider how to improve or optimise public information on these complex projects and give the public the means to participate usefully in debates and consultations.

Set up a permanent consultation mechanism on environmental issues related to renewable marine energy in order to collect and use feedback from all stakeholders: project leaders, regulatory authorities, experts and associations, and to integrate their contributions into practices, standards and norms as quickly as possible.

The scoping of impact studies is an important step in ensuring that environmental studies are accepted by all stakeholders. In effect, identifying the environmental issues at the preliminary scoping stage makes it possible to define the priorities of the impact study in a way that is shared by all the stakeholders with regard to the main effects of the project and the environmental issues. The scoping should also be an opportunity to explicitly formulate the objectives associated with Good Environmental Status at the project level, which will logically form the basis for the classification of issues, the impact assessment and the ERC sequence. Involving the public in environmental assessment meets a threefold need: compliance with the regulations, meeting a legitimate and growing demand from the public, and the need to involve all available experts. Several possibilities exist. At present, this participation takes place mainly during the public enquiry (after the impact study) to collect opinions from the public. This enquiry comes at the end of the process, which limits the potential for public involvement in the framing of the environmental assessment, the issues to be addressed and the assessment of the impacts. Consultation with experts is provided for in the regulations and allows for better sharing and appropriation of knowledge on marine biodiversity, which encompasses a large domain that is still little known and has a high degree of geographical variability.

Finally, there is a clear need to formalise the feedback from project owners, consultancy firms, expert bodies and regulatory authorities. Indeed, the analysis of the four projects, but more importantly the MRE Working Group of the IUCN French Committee, which since 2012 has brought together a large number of stakeholders in the field with the support of ADEME, has shown the importance of constantly supplementing and comparing knowledge in order to obtain better feedback. It is important to continue this ongoing exchange of questions, experiences, research and results.

FURTHER STEPS

- The Environmental Authority could publish guidelines for preliminary scoping, which would enable it to intervene upstream of projects without having to intervene in the scoping of each specific project.
- Tools to promote exchange and co-construction between the public and offshore wind project developers should be improved, based on the results of current research projects (e.g., in a hybrid format, face-to-face and digital)[31]

31. Example of e-debate and feedback from the Eolmed project, composed of four floating wind turbines off Gruissan: https://eolmed.edebat.fr/eolmed

SUMMARY

PLANNING

- Define macrozones and areas open to future calls for tender, decide on coexistence of MPAs and wind power

PLANNING (DSF, ETC.)

- Conduct an integrated SEA (all activities) at the DSF scale, including the ERC sequence and a risk assessment

STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

PROJECT

- Knowledge, preliminary framing
- Reference to the Marine Strategy Framework Directive and Good Environmental Status (GES)

ASSESS THE ENVIRONMENTAL ISSUES

- Access to knowledge
- Acquisition protocols

INITIAL CONDITION

- Reference to GES, sensitivity and impact scales, models
- All relevant projects and activities
- Improvement of the methodology

IMPACT ASSESSMENT (INCLUDING NATURA 2000)

ASSESSMENT OF CUMULATIVE IMPACTS

- Introduction of the ERC approach
- Integrated ecological compensation

ERC MEASURES

- Reference scale for impacts

ASSESSMENT OF RESIDUAL IMPACTS

- Consistency with monitoring programmes, pooling, summaries

MONITORING STRATEGY FOR IMPACTS AND ERC MEASURES

ENVIRONMENTAL GOVERNANCE

CONSULTATION

- Involve non-institutional experts in the early stages of the assessment

PUBLIC DEBATE

- Improve access to environmental information, consult specifically on environmental assessment

INSTRUCTION EXPERIENCE SHARING

- Pooling of skills, organisation of appraisal, sharing of feedback

PUBLIC INQUIRY

- Address the environmental assessment in the public enquiry

MONITORING COMMITTEE

- Involve the public in environmental monitoring, non-institutional experts in scientific monitoring

THE IUCN FRENCH COMMITTEE IS A NETWORK OF ORGANISATIONS AS WELL AS EXPERTS FROM THE INTERNATIONAL UNION FOR CONSERVATION OF NATURE IN FRANCE.

This unique partnership brings together 2 ministries, 10 public bodies, 55 non-governmental organisations and over 250 experts. Through its diverse membership, the IUCN French Committee provides a unique platform for dialogue, expertise and action on biodiversity issues, which also involves local authorities and businesses. Since June 2011, a working group has focused on the challenge of how to reconcile the development of marine renewable energy and the protection of marine biodiversity.

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