CAPACITY4MSP
Strengthening the capacity of MSP stakeholders and decision makers

Interreg Baltic Sea Region

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

WORKSHOP REPORT

Maritime Spatial Planning and Offshore Wind Energy

30 October 2020

Author: Ivana Lukic, SUBMARINER Network for Blue Growth EEIG

Acknowledgments: The Capacity4MSP project would like to heartily thank all the workshop co-organisers, speakers, panellists, and rapporteurs, and especially those who have devoted their time and knowledge to review and contribute to the report.

EU STRATEGY FOR THE BALTIC SEA REGION FLAGSHIP

INTRODUCTION

On 22 September 2020, the SUBMARINER Network for Blue Growth EEIG organised an online discussion workshop 'Offshore Energy and Maritime Spatial Planning', on behalf of the Capacity4MSP project, together with WindEurope, EUSBSR Priority Area Energy, Baltic Energy Market Interconnection Plan (BEMIP) Renewable Energy Working Group, Vattenfall, and German and Estonian offshore wind energy associations.

This interactive 3-hour long workshop with 60 attendees supported the exchange between the public authorities responsible for maritime spatial planning, offshore wind energy authorities, environmental NGOs and the offshore wind industry.

Four distinctive sessions provided an opportunity for discussion and the exchange of insights on the topics that were identified as relevant by public authorities and industry:

1. **Maritime spatial planning (MSP) addressing the national renewable energy targets**
2. **Spatial planning criteria for offshore cables - interactions with other sectors, with land interconnectors and across borders**
3. **Co-location & multi-use of space between the offshore wind farms and other uses – the need for a collaborative approach to policymaking**
4. **Offshore wind environmental impacts (positive and negative)**

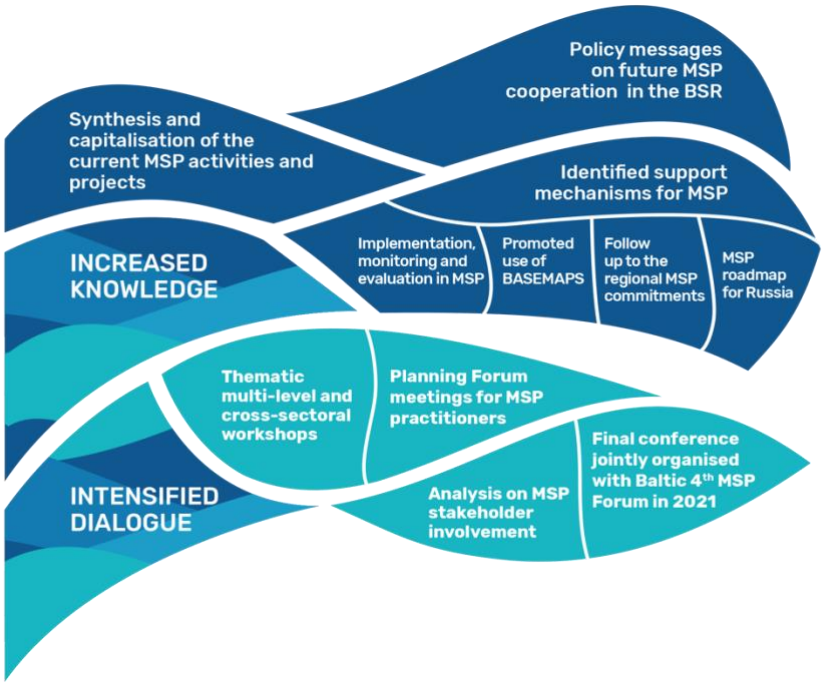
The workshop agenda is available as an annex to this report, while all the workshop presentations are accessible on the Capacity4MSP project website.

About Capacity4MSP project

Capacity4MSP aims to strengthen the capacity of maritime spatial planning (MSP) stakeholders, policy- and decision-makers in the Baltic Sea Region through intensified dialogue activities and amplifying the gained knowledge in maritime spatial planning.

Project duration: 1 August 2019 – 30 September 2021

Lead partner: VASAB Secretariat



CONTEXT

The European Union (EU) is committed to becoming climate-neutral by 2050, in line with the Paris Agreement. Offshore wind energy production is one of its important elements in the energy mix for reaching climate and energy targets. Following the European Green Deal published in December 2019, a **new** strategy on offshore renewable energy will be published in 2020.

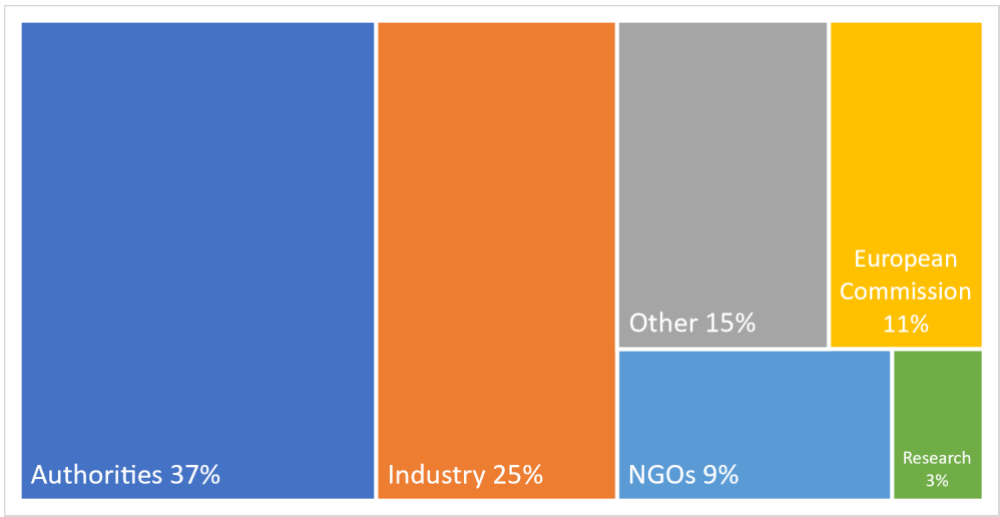
In its scenarios for a climate-neutral Europe by 2050, the European Commission aims to increase offshore wind from 23 GW today to up to 450 GW. According to WindEurope scenarios, the **Baltic Sea could host 83 GW by 2050**, up from today's 2.2 GW, bringing significant economic opportunities to the Baltic Sea countries. Nevertheless, reaching these targets depends upon many factors, including space availability, presence of and compatibility with other sea uses, and a balance with regard to the marine environment.

The eight Baltic Sea countries (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden) and the European Commission have also recently signed a **joint Declaration to accelerate the build-out of new offshore wind capacities in the Baltic Sea**, fostering mutual collaboration in the context of the Baltic Energy Market Interconnection Plan (BEMIP). This collaboration will include questions of hybrid offshore wind projects, smart grids, energy system integration and digitalization. According to the declaration, the countries will also develop coordinated approaches to maritime planning, considering other uses of sea space and environmental protection.

The concept of **maritime spatial planning (MSP) has been recognised as a tool that can provide more certainty for offshore wind investments**; minimise conflicts and maximise synergies with other sea users, while at the same time supporting an environmentally sound approach to maritime economic development.

The 'Offshore Energy and Maritime Spatial Planning' workshop provided a platform to discuss what the role of MSP is in ensuring that these future offshore wind energy targets are met and to clarify what approaches may be suitable in which circumstances. Given that the **Baltic Sea countries are at different stages of MSP and offshore wind development and are taking different planning approaches**, the workshop was also an opportunity to highlight some key lessons learned for countries that are just starting to plan their offshore wind energy (OWE), as well as to highlight some of the key industry needs.

Who attended the workshop?



1. MSP ADDRESSING THE NATIONAL RENEWABLE ENERGY TARGETS

To ensure that the EU climate targets are met, the EU Member States have been required to develop their 10-year National Energy and Climate Plans, including the renewable energy targets. Following this, the National Long-term Strategies need to be developed with a perspective of at least 30 years. The Member States are also in the process of developing or revising their maritime spatial plans. Thus, the question arises regarding **what the renewable energy targets, until 2030 and beyond, mean in terms of offshore space** needed for new offshore wind energy developments, and how spatial planning can consider these targets and contribute to reaching the full offshore wind potential.

The first session was moderated by Mr Colin Brown, Business Development Manager at Vattenfall and Chair of WindEurope's Baltic Task Force. The session highlighted the following:

- **Importance of official long-term renewable energy commitments, as well as the need for alignment of maritime spatial plans with these commitments. In practice this means that the ongoing MSP processes and revisions need to address the national renewable energy targets, by:**
    - **Ensuring that enough space for offshore wind will be timely allocated;**
    - **Considering the land-sea interactions including the timely planning of the electricity connection to land and the electricity grid capacities to accommodate these additional volumes.**
- **Transnational and cross-border cooperation is crucial, especially in relation to grid development and environmental impact assessment;**
- **All sectors need to work together, and sometimes compromise, to sustainably manage and develop the ocean resources, to protect important factors and tackle climate change.**

Role of MSP in allocating and securing space for offshore wind developments

Ms Triin Lepland from the Estonian Ministry of Finance gave a presentation about how Estonia is using maritime spatial planning (MSP) to plan for offshore wind energy (OWE). Estonian MSP is organised at the national level and is thus a quite high level, strategic, focusing on multi-use and new uses. A step-by-step process was used when planning the offshore wind energy areas; first finding the most suitable areas for offshore wind and then going through an elimination process considering other uses, that also included 'social buffers' of 11 km from the shoreline. In April 2019, the process revealed two potential areas for OWE for which an environmental impact assessment was conducted. In July 2020, two main solutions were proposed within these two areas and transnational consultation is currently on-going as part of the Espoo procedure. The experience from the very busy Parnu Bay is already revealing that the **MSP process, depending on its complexity, can reveal potentially suitable areas, but a more detailed, project level planning is needed in order to assess the actual fitness of the specific site for the offshore wind energy project.**

Ms Lea Bigom Wichmand from Wind Denmark stressed that **apart from MSP, sectoral planning and the use of different leasing schemes also have important implications to OWE development.** In general, there are two types of offshore wind projects in Denmark: 'tendering' and 'open door' and **there are possible challenges associated with an 'open door' scheme.** In Denmark, there are two upcoming national tenders for OWE as part of MSP, where the state conducts the EIAs, providing more security for developers. The *open-door scheme* is also used in Denmark, where developers are in charge of doing the detailed site assessments and EIAs to find suitable areas for OWE. Currently, many projects are trying to do this but not many are really getting off the ground.

Long term renewable energy commitments providing more certainty in the planning process

Mr Jacek Zaucha from the Maritime Institute/ Gdynia Maritime University in Poland gave a presentation about the integration of OWE in Polish MSP. The Polish maritime spatial plan is currently in its third draft (2016-2019), undergoing the transnational consultation as part of the Espoo procedure. The draft plan was developed on the basis of an analysis of conflicts, followed by an allocation of areas with the least amount of conflicts and the best OWE potential in the Exclusive Economic Zone (EEZ). The plan will function as a zoning plan, allocating 'main functions' and 'lower functions'. When the planning process started in Poland, there were not yet any national renewable energy targets, but now a policy is being developed that will include these targets – which the plan should be able to meet. **Timely establishment of the long-term commitments and their operationalisation through specific measures and policies is important as it provides a long-term perspective and more certainty in the planning process.**

The importance of transnational cooperation

Transnational cooperation will be key in supporting the offshore wind through coordinated policymaking, especially in relation to grid development and environmental impact assessment. Ms Lea Bigom Wichmand, from Wind Denmark, mentioned that in Denmark, making use of **energy islands and hybrid projects, as proposed by the Danish government, will be crucial for reaching projections for 2030 of 6 GW in Danish waters and 10 GW more in the decade following**. Danish transmission systems for instance cannot handle unlimited GWs, so transnational interconnectors need to be considered – this is why planning needs to take place not only from a national point of view but also from a joint MSP perspective. Ms Kristine Kedo, from the Ministry of Environmental Protection and Regional Development of Latvia, pointed out that Latvia has designated space as OWE research sites, working together with a wide variety of actors, and across borders. **Estonia and Latvia have recently signed a Memorandum of Understanding (MoU)** on collaboration on developing offshore wind and they are now also discussing the joint planning of connections on land.

2. SPATIAL PLANNING CRITERIA FOR OFFSHORE CABLES – INTERACTIONS WITH OTHER SECTORS, WITH LAND INTERCONNECTORS AND ACROSS BORDERS

The development of future offshore wind farms, in line with the climate targets, will also require more offshore energy transmission cables and with larger capacities. Spatial planning has a role to ensure that these are developed in line with marine conservation objectives, while also minimising conflicts with other uses, such as active fisheries or offshore dredging. Guided by the Trans-European Networks for Energy (TEN-E) regulations and the ambition to develop the European Internal Energy Market, grid developers are increasing the number of direct current (DC) and prospective alternate current (AC) interconnectors underwater. According to ENTSO-E's 2016 TYNDP, it is foreseen that about a third of future power grids could be built in the marine environment.

The second session was moderated by Mr Mattia Cecchinato from WindEurope, who emphasised that **when siting offshore wind farms, the MSP process needs to also early on consider the need to bring the electricity from OWE to shore as well as consider what the necessary volumes are in light of European targets to reach carbon neutrality. The following general recommendations for MSP resulted from this session:**

- **Planning needs to be undertaken at different scales, including at international (including with the third-party, non-EU Member States, when required), regional, national and local levels. Cross-border planning should be done at least at sea basin scale.**
- **Planning needs to ensure cross-sector cooperation, including consideration of combined zoning arrangements with other marine uses, with consideration given on minimising cumulative environmental impacts and supporting biodiversity recovery.**
- **The identification of landing points for offshore grid connection is also a very important part of the planning process and must be tackled at an early stage. This will allow identifying potential onshore grid constraints, and thus reinforcements needed, and minimise environmental impacts.**
- **Government support is needed for developing real demonstrations of multi-purpose interconnectors in the coming decade, following the Kriegers Flak example. This also requires common planning between TSOs on how to plan the future networks as well as agreement on a clear governing framework for multinational projects.**

Ms Johanna Meier from the Renewables Grid Initiative gave a presentation about technological and regulatory issues, as well as the environmental challenges in planning the offshore grid (e.g. underwater noise, sediment disturbance, heat and cumulative impacts considering other uses) and emphasised the importance of learning from existing terrestrial planning solutions. **Planning ahead all the way to full decarbonisation, planning collaboratively across sectors and planning in line with marine conservation objectives will ensure that the energy transition can be realised within the necessary timeframe while protecting biodiversity and the services ecosystems provide.**

The EU co-financed projects, such as PROMOTioN and Eurobar, have an important role in supporting the transnational collaboration and development of multi-national, integrated offshore power grids. A precondition for such developments is also the transnationally agreed frameworks and principles provided under the North Sea's Countries Offshore Grid Initiative, the Marine Grid Declaration, and the RGI-led Offshore Coalition (currently under development).

Planning ahead to ensure that additional volumes are accommodated

Mr Bo Nilsson representing Europacable, technical expert from NKT HV Cables, emphasised that long-term planning and transnational collaboration are crucial. **Where offshore farms are going up in scale towards 1+ GW, to achieve better cost efficiency, connecting cable capacity needs to follow**. **The switch from alternating (AC) to direct current (DC) will need to be made to increase the capacity and reduce losses.** A **connection to land also needs to be considered early on** - in some of the Baltic Sea countries, the maximum allowed power level to be connected to the main AC transmission system is around 500-700 MW, and hence lower than in the North Sea region. E.g. in the UK, the limit is of around 1.4 GW while in some places in Germany, there is a max of 2 GW.

The technical specifications such as the size, weight and installation method of cable systems are relevant aspects to be considered in MSP, especially with regard to their co-location with other users. This is the key message, to **minimise the creation of new marine infrastructure such as cable corridors by, if possible, optimising and coordinating with new and existing marine infrastructure.** Normally, each sea cable corridor utilises at least a 200 m width on the sea bottom. The aim with a combined approach is to optimise the power transfer solutions with a minimum of interference and impact on the environment and at the same time improve the overall cost-effectiveness. Assessments from the UK and Germany shows clearly the value of **combined cable system corridors**, going from multiple single-purpose projects to multi-purpose interconnectors, also called Hybrid Solutions.

The European first Hybrid solution is the Krigers Flak project, that has recently been taken in to operation. It represents an interconnector between Denmark and Germany that connects 3

offshore wind farms in the Baltic Sea. Mr Nilsson concluded that the technical solutions are ready for connecting new farms in the Baltic Sea in combination with interconnectors, i.e. hybrid solutions with dual-functionality. **The Baltic Sea actually has the advantage of existing islands** that can be used, whereas in the North Sea there is a dependence on platforms or potential artificial islands. One of the main developers in OWE business, Ørsted, is currently planning a hybrid solution connecting a cluster of offshore wind farms (with a total of 5 GW) to an energy island in south Baltic Sea (Bornholm) in combination with a DC interconnector between Denmark and Poland in a single cable corridor. We can expect to see many more similar projects in the near future.

Kriegers Flak hybrid grid solution

Mr Henrich Quick from 50Hertz followed the line as set out by Mr Nilsson and gave a presentation about the **Kriegers Flak combined grid solution which is the first example of combining OWE and interconnectors with dual functionalities, as hybrid solutions, saving significant space and costs.** Two wind farms will be installed in 2021 by Vattenfall. Since the two farms are close by, the proposal is to build an interconnector between Denmark and Germany. The trial operation has started in October 2020, with the market capacity to be available by December 2020. System tests done in isolation have shown that the connection between Denmark and Germany is successful. **Lessons learned from Kriegers Flak already show that rules governing the use of assets need to be agreed upon early on in the process, as the hybrid interconnector also implies a potential conflict of energy trading. This also implies that in some cases, a point-to-point connection is still useful in certain areas.**

Mr Andreas Wagner from the German Offshore Wind Energy Foundation emphasised that **the next logical step is to have a real demonstration in the coming decade, installing real projects following the combined grid solutions** as exemplified by the Kriegers Flak – both in the North Sea and in the Baltic Sea.

Mr Priit Heinla from Elering mentioned that **from a transmission system operator's (TSO) perspective, hybrid and DC is the only way forward, especially considering smaller states in the Eastern Baltic, such as Estonia and Latvia.** If the Baltic potential for OWE is to be realised, we need to really build the first example of a hybrid and meshed grid – and this requires common planning between TSOs on how to plan the future networks. We need to plan for 2050, not for 2030 – in order to create compatible solutions.

Ms Johanna Meier from the Renewables Grid Initiative further emphasised the importance of undertaking **comprehensive ecological sensitivity mapping as part of the MSP and SEA.** Such spatial mapping work should identify areas of high importance for species and habitats, as well as any uncertainties due to knowledge gaps.

3. CO-LOCATION AND MULTI-USE OF SPACE BETWEEN THE OFFSHORE WIND FARMS AND OTHER USES – THE NEED FOR COLLABORATIVE APPROACH TO POLICYMAKING

With an increased number of renewable energy developments offshore, there are more pressures on limited marine space, as well as risks of conflicts with other sea users. The Ocean Multi-Use Action Plan (2018)**,** recognises the co-location and multi-use as a concept that can support more sustainable, space-efficient, and synergetic use of the ocean space. While the concept has also been advocated through the EU MSP Directive and several research programmes on the EU and national level, the concept is still experiencing limited application. The lack of information about its impacts and associated regulatory barriers have been the often-cited reasons.

The third workshop session was moderated by Ms Ivana Lukic from the SUBMARINER Network for Blue Growth EEIG. During this session, the following conclusions were highlighted:

- **Governments need to drive pragmatic solutions and early dialogue to identify suitable multi-use solutions that bring benefits to society;**
- **Examples show that the co-location between offshore wind farms and fisheries are possible but dialogues with fishers need to commence early. Questions of defining the legal base; implementation of safety regulations; delineation of minimum requirements for fishing vessels such as capacities, quotas, technical equipment; implementation of a licensing process; and scoping for financial subsidies to set up a business, require close involvement of government, in many cases multiple agencies, and systemic changes going beyond a single project;**
- **Co-existence and multi-use go beyond compensation, but the latter can be useful in a transition period.**

Multi-use should be an integral part of MSP

Mr Jacek Zaucha highlighted that the definition of offshore energy in the Polish plan also includes potential multi-use as t**here are a lot of competing interests for offshore space. Multi-use in MSP should include an estimation about the impacts on the marine environment and its carrying capacity, in line with the precautionary principle.**

Mr Joacim Johannesson from the Swedish Agency for Marine and Water Management, SwAM, emphasised how MSP can support co-existence, bringing in the example of Sweden. In December 2019, SwAM submitted proposals for marine spatial plans to the Swedish Government. The proposals include 14 energy areas, including in Natura 2000 sites. The MSP will have a guiding rather than prescribing role, and as such, it initially supports co-existence between different sectors. Nevertheless, only during the permitting processes, will it be decided whether a specific offshore wind farm can be developed.

Governments need to drive pragmatic solutions

Mr Esben Baltzer-Nielsen from Vattenfall highlighted an example of co-location in the Krieger's Flak offshore wind farm in Denmark. The farm layout is designed in such a way that there is a shipping route passing through the farm – and the area is also divided into two parts for sand extraction. This was possible in this case as the shipping route was not considered as a hard constraint. Mr Baltzer-Nielsen also emphasised the potential for co-location with fisheries, as there is often almost a kilometre of space between turbines where passive fishing could be allowed as a co-use – for instance in the Horns Rev 3 in the North Sea. **Co-location of fisheries and offshore wind farms could be**

considered as a potential win-win, increasing fish abundance and encouraging new sustainable fishing methods. Moreover, the compensation can be a relevant measure in specific cases, but it cannot be the norm – namely, governments have the responsibility to encourage early dialogue and drive pragmatic solutions.

Ms Femke de Boer from the Scottish White Fish Producers Association pointed out that the **fishing industry is generally not against OWE per se, but the issue is that fishers are often left out of the planning process**. Ms Boer highlighted some of the **key challenges that require an early dialogue with fishers, while governments need to drive pragmatic solutions:**

- **Even where legislation allows the continuation of fishing within OWE areas, there are still questions regarding safety, and whether 1 kilometre between turbines is enough for fishermen, who may rightfully be afraid to fish there;**
- **Construction of an OWE may change the species composition in an area, leaving the affected fishermen empty-handed as fishing vessels are generally built for one gear specifically. Changing gear is often very difficult and costly, and there are often also quota limitations.**

4. OFFSHORE WIND ENVIRONMENTAL IMPACTS (POSITIVE AND NEGATIVE)

While the exploitation of OWE is important for reaching the climate targets, it is also vital to ensure that this development is sustainable and is achieved without significant damage to the natural environment and to Europe's natural heritage. The offshore wind industry is evolving with regard to the wind farm size, technology, and distance from shore, among others. The understanding of its impacts on the environment is also evolving, requiring periodical revisits of related guidelines and policies.

The fourth and final session of the workshop was an opportunity to exchange good practices and present new guidelines that are meant to support the environmentally sound development of OWE. The following highlights came out of the session:

- **Early discussions with stakeholders about possible impacts of offshore wind farms on the environment, facilitated through an MSP and SEA processes, and making data on impacts available, could reduce the burden on developers during the permitting process.**
- **Collaboration across borders is needed in order to ensure that migration corridors are properly taken into consideration, but also with regard to making the environmental impact procedures compatible and sharing the information.**

Ms Elina Virtanen from the Finnish Environment Institute (SYKE) presented how the suitable OWE areas were identified in Finland balancing the profitability of offshore energy production, societal impacts, and biodiversity. A decision support tool 'Zonation' originally developed for ecologically-based land-use planning, but now applied also for offshore situations, was used for modelling optimal wind areas. The results were integrated into the maritime spatial plan in Finland that has a strategic, guiding character - it is not an area reservation plan. The eight coastal regional councils responsible for conducting MSP, also received the results of the model and used it for their planning.

Ms Sophie Ouzet from the European Commission, Directorate-General for the Environment (DG ENV), Unit D3/ Nature protection presented the **new EU guidance document on Natura 2000 and wind energy developments.** The guidance presents the update of the document released in 2011, to include new technologies, more knowledge and case studies, as well as court cases to allow for a better interpretation of EU legislation. The document emphasises the importance of strategic planning and it includes principles and examples of adaptive management – following the order of 'observe,

assess, inform, and act – repeat'. Ms Ouzet also highlighted the upcoming **Wildlife Sensitivity Maps** that will provide information on the locations of sensitive wildlife, which are meant to inform strategic planning decisions during the offshore wind farm site selection phase. The maps will be made available in the coming months as part of the online interactive tool/ manual.

Ms Giulia Carbone from the International Union for Conservation of Nature (IUCN) emphasised that renewable energy sources will play a critical role in achieving a net-zero emissions scenario but warned about the associated low-carbon transition risks, among which is the loss of biodiversity, that needs to be addressed effectively and timely. **MSP should create an enabling framework for project developers and operators to implement effective mitigation measures for biodiversity impacts, following the mitigation hierarchy.** Ms Carbone also stressed that MSP should aim to create synergies between offshore wind farms and other climate-resilient, nature-based solutions, such as for example seaweed farming, and/ or use of bio-enhancing materials for cement foundations or scouring protection that can support the restoration of benthic habitats in association with the wind turbine foundation. The **'Guidelines for mitigating biodiversity impacts associated with solar and wind energy development'**, including the mitigation hierarchy tool, are currently being developed by the IUCN and several other partners, including industry leaders and international environmental NGOs. The mitigation hierarchy tool will provide OWE developers with a logical framework to address the negative impacts of development on biodiversity and ecosystem services. The guidelines are expected to be published by the end of 2020.