North Seas Energy Cooperation

Support Group 1

Status of discussions for NSEC Ministers and the Energy Commissioner

Support group 1 discussed the concepts of concrete hybrid1 and joint2 project proposals and identified investment barriers as well as potential approaches to overcome these. The North Sea Wind Power Hub (multiple NSEC countries), WindConnector (Netherland – United Kingdom) and the Nautilus Hybrid Interconnector (Belgium – United Kingdom) were assessed by the group. In particular, the group focused on the most relevant topics of Cost-Benefit Analysis (CBA), Cross-Border Cost Allocation (CBCA) and market arrangements.

Throughout the discussions, Support Group 1 received input from project developers and TSOs highlighting their perspectives in relation to the expansion of offshore wind in the North Seas. This document provides an overview of discussions of Support Group 1 based on this input.

It should be borne in mind that two of the assessed projects aim to connect the internal market with a third country in the form of the United Kingdom. These projects were chosen while the UK was an EU Member State. Projects were chosen based the stage of development and the potential to give insight relevant for the group. The additional uncertainties faced by these projects arising from the situation that the UK has ceased to be a Member State are and will not be necessarily representative of the regulatory framework for projects within the internal market nor of the challenges facing projects between Member States. The discussions in SG1 relate specifically to the internal market. It is not the intention of SG1 to promote particular arrangements for hybrid projects with third countries. The framework for cooperation between the EU and the UK in the field of energy, including offshore, is being addressed by the ongoing negotiations.

Furthermore it is recognized that EU market regulations are relevant for all member states. It is not the intention of SG1 to secure preferential market treatment for offshore renewable energy technologies at the expense of land-based renewables and to the potential detriment of member states that do not have direct access to offshore resources. SG1 strives for a level playing field for all renewable energy technologies.

Hybrid and joint offshore wind projects

- Hybrid and joint projects have the potential to magnify the cost-efficient deployment of offshore wind energy and increase capacity for cross-border trade, thereby contributing to security of supply, better

[1] Hybrid projects combine offshore wind power generation with transmission of electricity via interconnector (two components).

[2] Joint projects distribute costs and benefits between countries by the means of an Intergovernmental Agreement. This includes, but is not limited to, joint projects as defined in RED II.

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market integration and lower electricity prices while at the same time facilitating large investments and innovative technologies for the benefit of the European economy.

- There are substantial existing barriers to the implementation of hybrid and joint projects, including but not limited to regulatory barriers, which cannot be overcome by bilateral and multilateral intergovernmental agreements between Member States on specific projects alone, but require an enabling framework at EU level to enhance the investment conditions and realisation of hybrid and joint projects.
- There is need for full commitment and cooperation of all participating countries in order to address these barriers.
- Hybrid and joint projects have to be assessed on a case by case analysis as topologies and project stakeholders might be different across projects.

Market Arrangements

- In general market arrangements (i.e. electricity market rules and governance) need to fulfil the following criteria: ensure an efficient utilisation of grid and market resources, address curtailment as well as redispatch and potential disadvantages for Offshore Wind Farms (OWF) in a hybrid project regarding market revenues and grid access, address repercussions on national renewable energy support schemes, distributional effects on costs and revenues of market actors, address legal uncertainties, incentivise efficient investment and thereby contribute to renewable energy deployment across the EU. Against this background, we recognise that there are **several approaches** for market arrangements regarding the regulation of offshore hybrid assets which all have advantages and disadvantages.
- Consequences of market arrangements for consumers will be multi-fold, including wholesale price effects, security of supply impact, consequences for grid tariffs and impacts on RES targets and RES support schemes. Without redistribution, however, reaching net benefits for consumers in all Member States involved, is challenging.
- One approach discussed by the group was separate offshore bidding zones for hybrid assets. This option could deliver a social welfare maximising coordination between the functions of cross-border exchange and OWF connection. However, this approach may create uncertainties for market actors and member states: with offshore bidding zones OWF operators could in many cases (but not all) face lower prices and higher price risks if the project is developed on a market only basis. Tailored support schemes could be needed in order to ensure the realisation of these projects and in the cases with lower prices and higher risks, the required level of national support would be higher. . Furthermore, there are potentially complex governance-related questions, in particular for multi-national bidding zones, on their establishment, the competent regulatory authority and the operational responsibility. These questions could be assessed by further research including existing experience of multi-national bidding zones in Europe and exploring offshore national bidding zones as a more simple approach among the options for bidding zones.
- An alternative approach to address the trade-off between the purposes of hybrid assets is the inclusion of the hybrid asset in the national bidding zones. This would imply offering the remaining cross-border-/zonal transmission capacity of the hybrid asset to the market, after in-feed of the offshore wind

energy (preferential capacity allocation for generation in hybrid assets). However, this approach goes in a different direction than current market rules on priority dispatch and cross-border trade and the questions about whether it could support a large scale up of offshore wind need to be assessed. With a consideration of these issues, amending the legal classification of hybrid assets and the market arrangements for hybrid projects was discussed, in particular regarding the requirements of EU Electricity Market Regulation. In the discussion of the above issues, SG1 members had diverging views.

- Given the above considerations, in particular for more advanced projects under development, there is a bigger the need for developing a viable solution for market arrangements with a low level of complexity that fulfils the identified criteria. Furthermore more research and modelling could be needed to fully investigate all related effects.

Cost benefit analysis and cross-border cost allocation

- Efficient and quantifiable mechanisms among TSOs for the allocation of costs and benefits for cross-border **infrastructure** in hybrid projects exist under the current TEN-E regulation. However, CBA outcomes - on which the CBCA depends – might lead to discussions on the values for ''winners and losers'' of projects.
- There is less clarity on the allocation of costs and benefits of **wind power generation** from joint projects under the RED-II regulation.
- There is a need for **guidance** – possibly by the European Commission - on coordinating CBAs and CBCAs for generation assets and infrastructure assets as a basis for Intergovernmental Agreements (IGA) for joint and hybrid projects. Such guidance may include – *inter alia* – how to allocate renewable energy target amounts, costs for renewable energy support, grid (inter)connection and grid integration.
- Furthermore, such guidance may provide **transparency** about a suitable structure of an IGA in order to reduce **transaction costs** between the involved parties.

Conducted work

Following the new work programme, SG1 aimed at bringing forward joint solutions for concrete hybrid and joint projects as well as discussing elements of an EU regulatory framework for hybrid and joint projects that facilitates the implementation of such projects, thereby delivering results that can benefit all North Seas countries. With the **North Sea Wind Power Hub** (multiple countries) and **WindConnector** (Netherland – United Kingdom) SG1 chose two projects previously identified by Roland Berger as well as one additional project called **Nautilus Hybrid Interconnector** (Belgium – United Kingdom) for a deeper analysis. The project developers were invited to the meetings to give their perspective on the challenges for these projects.

In the course of three SG1 meetings between January and April 2020, SG1 identified a **comprehensive list of major barriers** which need to be solved to materialise these projects under development as well as other hybrid and joint projects.

SG1 took a closer look at two categories of barriers which were considered as especially important for the development of hybrid and joint projects: Cost Benefit Analysis (CBA) and Cross-Border Cost Allocation (CBCA) as well as market arrangements. **CBA and CBCA** are relevant for projects partners and Member States to fairly distribute the expected financial impact of such projects among different stakeholders as well as, inter alia, renewables targets and grid integration costs among Member States. The discussion on **Market Arrangements** for hybrid projects is mainly based on the EU electricity regulation which requires interconnectors to open up to 70% for trade flows and changes to the market rules for renewables. The applicable market arrangements have a direct impact on project setup.

Attached are summaries of the identified barriers, on market arrangements as well as CBA and CBCA.

Conclusions on Market arrangements for Offshore Hybrid Assets

Key aspects

SG1 recognises that there are several options for market arrangements (i.e. electricity market rules and governance) for the regulation of offshore hybrid assets, which all have pros and cons. Therefore, it is necessary to clarify and advance the legal framework of hybrid assets and the market arrangements for hybrid projects, in particular regarding the requirements of the EU Electricity Market Regulation, while taking into due consideration the effects on societal welfare, market functioning, decarbonisation objectives, curtailment, profitability of the offshore wind generation, investment incentives and distributional effects on costs and profits. This may include different solutions in the short- and long-term perspective of joint and hybrid projects under development. The following aspects were identified to be relevant in this context:

- **Evolution and timing of hybrid assets**: in this context it is particularly relevant how the hybrid project is built up and whether it is planned and coordinated centrally or whether the project is ''bolted'' onto existing or planned offshore wind infrastructure or interconnectors.
- **Ensure efficient dispatch:** Market arrangements need to consider an efficient utilisation of grid and market resources.
- **Legal considerations of hybrid assets:** Hybrid assets fulfill two purposes, interconnection and offshore wind farm connection. It needs to be assessed whether they should be defined as interconnectors pursuant to internal electricity market regulation.
- **Reap benefits of Offshore Wind Farms (OWF):** When defining market arrangements for hybrid assets, disadvantages for OWF regarding market revenues and grid access need to be avoided in order not to hamper realisation of these projects and their contribution to national and European energy and climate targets.
- **Incentivise efficient investments:** Discussion on market arrangements needs to take into account long-term incentives for relevant market actors and stakeholders, including Member States. This will most likely require a reallocation of costs and benefits to enable “win-win-situations” for participating market actors as well as participating countries.

During SG1 discussions, two concrete market arrangements were discussed in more detail. SG1 does not seek to recommend – neither to implement nor to disregard – either of these concepts but calls for consideration of relevant socio-economic, market, distributional and governmental impacts in order to assess appropriate market arrangements. The type of market arrangements to be further discussed are not necessarily limited to the ones examined.

All presented joint and hybrid projects highlighted market arrangements as one of the key issues to define business cases and realise the project. Consequences of market arrangements for consumers will be multi-fold, including wholesale price effects, security of supply impact, consequences for grid tariffs and impacts

on RES targets and RES support schemes. Without extensive redistribution, however, reaching net benefits for consumers in all Member States involved, is challenging.

Redistribution of costs and benefits: A cross-border (re-)distribution of costs and benefits (taking into account elements like investment and operation costs, wholesale price effects, support costs and contributions to RES targets) between stakeholders, stakeholder groups and Member States will be crucial for incentivising efficient investments in and operation of hybrid assets. The decision on allocation of costs and benefits could be based on a Cost Benefit Analyses (CBAs) for both infrastructure and generation assets. SG1 acknowledged, however, that the complexity of such coordinated CBAs is high and will to a large extent depend on scenarios and assumptions.

Project requirements

Three projects under development at different stages of maturity were presented in SG1: North Sea Wind Power Hub, WindConnector, and the Nautilus Hybrid Interconnector. SG1 recognised that all projects require clarity on the applicable market arrangement to make them happen. A project's preference for a certain type of market arrangement might differ depending on the project development stage and hence the urgency to take investment decisions at the appropriate time.

Concept 1: The market arrangement of offshore bidding zones

This arrangement would entail establishing an offshore bidding zone for the hybrid project. It means that the connections to the neighbouring countries would be classified as interconnectors (or cross zonal assets within the same country) and trade would be determined by market coupling.

Characteristics of offshore bidding zones

The input and discussion on offshore bidding zones revealed some important characteristics of a market arrangement with offshore bidding zones:

- **Efficient dispatch:** Offshore bidding zones for hybrid assets deliver a statically efficient (efficient use of *existing* assets) coordination between the functions of cross-border exchange and OWF connection.
- **Limitation of OWF curtailment:** OWF have unlimited grid access and can sell to more than one market as long as the capacity of the hybrid asset cannot be used for more welfare enhancing purposes than OWF–to-shore connection, for example by using the electricity offshore where it is produced. .
- **In many (but not all) cases lower prices in offshore bidding zones and higher price risks** as compared to a market arrangement without offshore bidding zones**:** For a lot of situations, the price in the offshore bidding zone will be at the lower bound of the price range across the onshore bidding zones interconnected by the hybrid asset, as they need to compete on price with the cheapest connected market. This will change when the capacity between the onshore bidding zone with lowest price and the offshore bidding zone is exhausted. More generally, the market price of the offshore bidding zone accommodating hybrid assets will be the lowest price among all bidding zones where the interconnection with the offshore bidding zone is not congested, as they need to compete on price with

the cheapest connected market. The offshore bidding zone price depends on the design (national or multi-national) and the congestion of the cross-zonal assets.

Consequences for market participants and stakeholders

Despite fostering a statically efficient dispatch, offshore bidding zones trigger further questions for many relevant stakeholders. Hence, with offshore bidding zones, the incentives to pursue the realisation of hybrid assets on a market only basis could be reduced. It is therefore not obvious that offshore bidding zones entail adequate investment incentives (i.e. ensure dynamic efficiency).

- With offshore bidding zones, OWF operators will in many (though not all) cases face higher price risks than with alternative market arrangements such as integration in an overall national bidding zone and as a consequence could need tailored adaptations of support schemes. In the event of lower prices, the required level of national support would be increased. The question of lower revenues depends on the market being connected.
- For TSOs, congestion revenues will mainly depend on the existence of interconnection. Establishment of multi-national offshore bidding zones might require competence transfers. This would require, at a minimum, complex and lengthy coordination efforts. A first step could be national offshore bidding zones, which could offer a more simple solution.

Challenges for governance of offshore bidding zones

SG1 acknowledged that any implementation of offshore bidding zones would require the development and implementation of a governance concept first. Discussed aspects included the following:

- **Establishment of national and multinational bidding zones.** Whereas changes in the Guideline on Capacity Allocation and Congestion Management (CACM) might not be necessary, some clarifications would be recommended.
- **Applicable legal and regulatory framework/competent regulatory authority for multinational bidding zones:** The need to establish clear rules and responsibilities was recognised. SG1 members had diverging views, however, on the efforts needed to achieve this target. It would be useful to compare existing experience of multinational bidding zones and national bidding zones in this context.
- **Operational responsibility for multi-national bidding zones:** Offshore bidding zones would need system operators taking on similar responsibilities as TSOs do for onshore transmission systems. This raises many new questions. SG1 members had diverging views on whether the independence of such entities as well as their proper financing will have to be ensured. It would be useful to examine this topic further based on existing experience.
- **Redistribution of revenues and congestion rent:** It is important to consider the potential change to revenue streams for wind farm operators on the one hand and system operators on the other.

Concept 2: Market arrangements for the inclusion in onshore bidding zones

With OWF being part of the bidding zones in the Exclusive Economic Zone of their countries, as today, and the 70% rule for minimum capacities on interconnectors under Article 16 (8) of Regulation (EU) 2019/943,

this would lead to flows of OWFs being subordinate to international trade in import situations when the domestic price is higher than the imports, thus risking curtailment in those situations.

One option raised to address the curtailment risk at times of imports was **granting offshore wind preferential capacity allocation to the grid** by means of an exemption from the priority dispatch rule and the 70% rule under Article 16 of the EU Electricity Market Regulation was raised, though SG1 members had diverging views. It was stressed that preferential capacity allocation should be limited to the generation in the hybrid project and must not be provided in general. This influences the trade flows and therefore affects social economic welfare. The effect on curtailment depends on the direction of trade.
The exemption could **prevent curtailment linked to cross border trade.**. However, potential conflicts with the principle of maximisation of grid access and priority dispatch in the Electricity Market Regulation would arise and need to be taken into consideration when planning hybrid projects. The remaining curtailment risk depends on the ability of the onshore grid to absorb electricity from new offshore capacities. Therefore, revenue streams of OWF project operators could be more plannable, as they depend only on wholesale price developments of one market, support scheme framework, grid connection rules of one market and receive full compensation for curtailment which is highly relevant for their decision-makers. However these investment frameworks would need to be anyway updated to align with the clean energy package.

This option could be implemented within short- to medium-term timeframes, although it relies on an exemption or derogation decision from the Commission. It could also require an amendment of (or, at least, clarity on) the electricity regulation.

Challenges for concept 2

- **Legal consideration of hybrid assets:** Hybrid assets fulfill three purposes, i.e. wind energy generation, interconnection and offshore wind farm connection[3]. Whether they are to be legally defined exclusively as interconnectors under the electricity market regulation is relevant.
- There might be **more challenges** for preferential capacity allocation, such as increased regulatory uncertainty in the event of individual case by case assessment. Also distributional and competition effects between onshore and offshore assets need to be addressed. The option might also entail economic inefficiencies and regulatory uncertainty. It also influences trade flows and therefore affects social economic welfare. The effect on curtailment depends on the direction of trade. This option has the structural consequence of more expensive national generation being prioritised over less expensive imports..

[3] These purposes are independent of ownership questions regarding unbundling.

Conclusions on CBA and CBCA

1. Key aspects

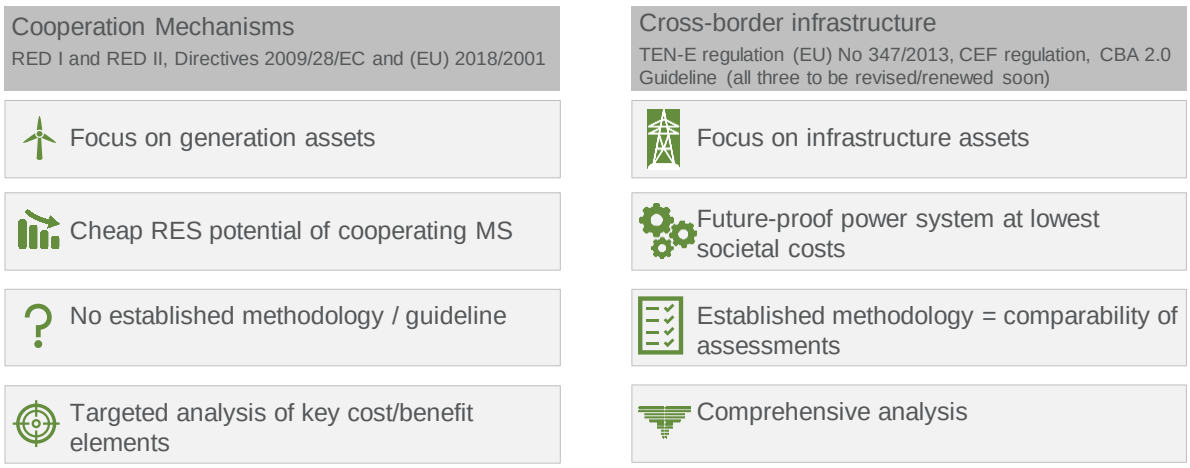
- SG1 recognises that in order to advance (joint) hybrid offshore projects it is key to understand their implied costs and benefits. Such costs are initially distributed between the involved actors or countries unequally, leaving some with net benefits and others with net costs. The initial distribution of costs and benefits depends on the configuration of the (joint) hybrid offshore project, on its regulatory context and the applied market arrangements. Reallocating the costs and benefits of a project in a way that the relevant impacted parties are better off with the project than without it is a prerequisite for its implementation.
- SG1 agrees that (joint) hybrid offshore wind projects are composed of different elements, including the generation asset (with the grid connection) and infrastructure elements fulfilling an interconnector-like function. There are differences for each of these elements regarding the
    - Cooperation process
    - Involved stakeholders
    - Legal embedding
    - The underlying rationale
    - Cost-benefit analysis and allocation
- These differences need to be taken into account and potentially need to be coordinated for (joint) hybrid offshore projects to create a net benefit for the various involved parties and to concrete projects.
- SG1 recognises that mechanisms among TSOs for the allocation of costs and benefits for cross-border infrastructure in hybrid projects exist under TEN-E regulation, while the approach to assessing and allocating costs and benefits for joint projects under RED-II regulation need to be further developed and interactions with CBA under TEN-E improved.
- SG1 agrees that a suitable way forward to successfully assess and reallocate costs and benefits in offshore cooperation is that of a coordinated approach, rather than a merge of the cooperation-related processes for the infrastructure and the generation assets.
- SG1 considers the main advantages of a coordinated approach to be the continued use of well-functioning and established processes while the different rationales for cooperating on infrastructure and generation assets can be maintained.
- SG1 agrees that necessary elements for successfully advancing the analysis and allocation of costs and benefits in (joint) hybrid offshore projects include, inter alia:
    - Using the infrastructure CBA as basis for the CBA on generation assets (including alignment with ENTSO-E's TYNDP scenarios)
    - Creating transparency on the indicators used in ENTSO-E's CBA guideline and those commonly used in the context of the Cooperation Mechanisms of the RED I and RED II, including inter alia the indicator of RES integration
    - Avoiding double counting between the CBA conducted for the infrastructure assets and the generation asset (for instance regarding grid connection costs, RES integration, support costs)
    - Addressing the challenge that CBAs are done ex-ante, i.e. before the actual costs and benefits occur. The analysis is highly sensitive to the chosen assumptions and whether costs and benefits actually occur as initially analysed is related to major uncertainties.
    - Avoiding the attempt of full monetization of all possible impacts for all parties, which would result in prohibitive costs, but maintaining a view on the strategic, political and long-term benefits of cooperation

- Creating transparency on compensation agreements between the involved parties, i.e. Member States and TSO and the related compensation options (such as RES statistics vs. payments)
- Referring in any Intergovernmental Agreement (IGA) on (joint) hybrid offshore wind projects to both parts of the hybrid project (i.e. infrastructure and generation) to ensure that a robust case for cooperation is built.

- SG1 recognises that intergovernmental agreements (IGAs) on (joint) hybrid offshore projects need to address both the Cost Benefit Analysis (CBA) and Cross-Border Cost Allocation (CBCA) for generation assets including renewable target allocation as well as CBA and CBCA for infrastructure assets of the same project. However, SG1 recognises a lack of practice and guidance in the EU on how to bring both assessments together under the roof of an IGA. Therefore, SG1 considers guidance is needed on the assessment and allocation of costs and benefits for (joint) hybrid offshore wind projects and is ready to provide input for the upcoming EC offshore strategy. By this means, SG1 would like to increase transparency and lower transactions costs for setting up IGAs.

1.1. Cost-benefit analysis (CBA)

An offshore cooperation project creates overall costs and benefits which are composed of its individual components and their impacts (i.e. the infrastructure assets and the generation assets). The approach to analysing costs and benefits has so far been different between generation assets and infrastructure assets.



The RED I & II focus on generation assets and do not define a general CBA approach, not to speak of a detailed CBA methodology. When assessing costs and benefits between Member States, there is no claim for a comprehensive analysis. The aim is rather the selection of the most important cost and benefit factors to support the political will to cooperate. Limiting the analysed cost and benefit elements reduces the complexity and thus the transaction costs of the cooperation. Typical elements of assessing costs and benefits in the context of the Cooperation Mechanisms are RES statistics as the main benefit and support costs as the main cost. In addition, RES integration costs (i.e. cost for grid reinforcement and additional redispatch) are sometimes considered as well.

It is important to note that joint projects as defined in the RED I and II have not been implemented so far, with the exception of the German-Danish PV tender.[4] Considerations on how costs and benefits ought to be addressed for joint projects are based on case studies and research projects on the topic.

In contrast, the CBA used for infrastructure assets results from the TEN-E regulation and is defined in detail in ENTSO-E's CBA guideline.[5] The CBA methodology is used in ENTSO-E's TYNDP process and in the subsequent PCI process. It aims for comprehensive analyses and for the comparability of assessments between projects

For (joint) hybrid offshore projects, the different approaches to assessing the costs and benefits mentioned above need to be taken reconciled to allow for a redistribution of costs and benefits so that the relevant impacted parties are better off than without the cooperation.

1.2. Cross-border cost-benefit allocation

Infrastructure projects (TEN-E) and generation assets (RED I and II) do not only show differences in the cooperation process and cost-benefit analysis, but also in relation to re-allocating the costs and benefits.

When allocating costs and benefits for cooperation projects as defined in the RED (I and II) (i.e. generation assets), all key steps are implemented by the involved MS. MS agree to cooperate and identify the key cost and benefit elements of cooperation. Subsequently, MS agree on a compensation model (i.e. the transfer of RES statistics, compensation payments or both) and on the specific allocation of costs and benefits. Of course, a variety of details on the practical implementation of the allocation decision need to be decided (i.e. payment streams and conditions, RES transfer implementation) and each MS needs to notify the Cooperation Agreement to the European Commission. For cross-border infrastructure projects the cost allocation is CBA-based, it aims for completeness and for cross-European comparability of assessments, and it involves project promoters, TSOs, NRAs and ACER.

Joint projects as defined in the REDII have not been implemented so far, with the exception of the German-Danish PV tender. However, since the main mechanism is that one MS pays costs of support for a RES installation in another MS and receives RES statistics for this payment, an allocation of costs and benefits is at the core of the Cooperation Mechanisms.

1.3. A way forward

As seen, TEN-E and cross-border infrastructure assets on the one hand and Cooperation Mechanisms as defined in the RED I & II and generation assets on the other hand differ in how the project development cycle looks like, how their costs and benefits are assessed, how these are reallocated.

In a (joint) hybrid offshore project, these processes and perspectives interact. To advance a (joint) hybrid offshore project, these different perspectives need to be made transparent and reconciled. There are two

[4] The German-Danish PV cooperation was not based on a detailed CBA, but was a means to meet the requirement by DG Competition to partially open the German and Danish support schemes for installations from abroad. The cooperation did not result in a cost-benefit allocation, but a mutual opening of the two national RES support schemes to create a mutual benefit.

[5] The current 2.0 guideline will be replaced by the 3.0 guideline, which has been submitted to ACER for its opinion in Feb 2019.

main options to achieve this: fully merge both processes in a comprehensive and fully integrated framework or coordinate both approaches.

A coordinated approach to assessing costs and benefits and reallocating them may be a suitable solution to take into account the manifold considerations on costs and benefits for infrastructure and for generation assets while avoiding an overly complex and inflexible framework. In a coordinated approach, the CBA approach as used in the TYNDP process and for CBCAs may be continued (and further improved). The conducted CBAs may then however be used for the further distribution of costs and benefits in the context of the Cooperation Mechanism (i.e. with a focus on the generation asset and the resulting RES target statistics).

Necessary elements for successfully advancing the analysis and allocation of costs and benefits in (joint) hybrid offshore projects include, inter alia:

- Using the infrastructure CBA as basis for the CBA on generation assets (including alignment with ENTSO-E's TYNDP scenarios)
- Creating transparency on the indicators used in ENTSO-E's CBA guideline and those commonly used in the context of the Cooperation Mechanisms of the RED I and RED II, including inter alia the indicator of RES integration
- Avoiding double counting between the CBA conducted for the infrastructure assets and the generation asset (for instance regarding grid connection costs, RES integration, support costs)
- Avoiding the attempt of full monetization of all possible impacts for all parties, which would result in prohibitive costs, but maintaining a view on the strategic, political and long-term benefits of cooperation
- Creating transparency on compensation agreements between the involved parties, i.e. Member States and TSO and the related compensation options (such as RES statistics vs. payments)
- Referring in any Intergovernmental Agreement (IGA) on (joint) hybrid offshore projects to both parts of the hybrid project (i.e. infrastructure and generation) to ensure that a robust case for cooperation is built.

In a coordinated approach, it would be key to create transparency for each of the related items (infrastructure and generation asset) in terms of their project development cycle and cost-benefit assessment and allocation. In addition, the CBA and CBCA implemented for the infrastructure part would need to be delineated from the allocation of costs and benefits related to the generation asset (and the resulting RES target achievement). This will require further conceptual work, e.g. how to deal with overlapping items such as "RES integration" (a benefit in infrastructure projects, a cost in RES generation projects).

To help project developers , Member States and TSOs (and all other relevant stakeholders) to manage the complex analysis and re-allocation of costs and benefits, a structured guidance would be beneficial. Such guidance (i.e. guidance documents and coordination activities) may provide a common conceptual and procedural frame for (joint) hybrid offshore wind projects while at the same time recognising the wide variety of possible project

List of identified barriers

Identified barriers to cross-border hybrid offshore projects					
Spatial- and Grid-Planning and administration (incl. cross-sectoral planning)	**Market Arrangements**	**Grid connection**	**Cost Benefit Analysis (CBA) and Cross boarder Cost Allocation (CBCA)**	**Financing of projects (incl. price formation and support payments)**	**Other barriers**
• Different planning regimes and responsibilities across countries • Missing alignment of planning across assets and countries • Uncertainty about responsibility and rules to provide access to maritime space for OWFs (location selection, site pre-investigation, tender design & execution) • Missing legislative regime for power-to-gas and other sector-coupling infrastructure	• Uncertainty about applicable market arrangements (which bidding zone, bidding zone configuration) • Uncertainty about rules for cross-border electricity trade (interconnector accessibility, market access) • Uncertainty about terms of balancing responsibility and grid services • Uncertainty about role of regulation versus market forces	• Uncertainty about regulation deriving from jurisdiction over cross-border cable systems • Uncertainty about hybrid cable system classification • Implication of 70% rule on interconnector sizing • Different responsibilities for grid connection across countries	• Unbalanced allocation of costs and benefits across countries • Disproportionate allocation of costs and benefits across stakeholders • Unclarity about CBA in IGAs (scope, methodology, reallocation mechanism) • Coordination of infrastructure and production assets process	• Lack of regulated revenues for anticipatory investments • Uncertainty about applicable subsidy schemes for RES • Uncertainty about available EU-funding	• Limited engagement of public stakeholders • Uncertainty regarding the British market