

The North Seas Countries' Offshore Grid Initiative

Recommendations for guiding principles for the development of integrated offshore cross border infrastructure

Deliverable 2 - final report

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Working Group 2 – Market and Regulatory issues
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Executive Summary

Governments, Regulators and TSOs are working together under the North Seas Countries' Offshore Grid Initiative with a view to identifying a need for, and delivering and operating integrated infrastructure, which would not be operational for several years and should "make sense" during the subsequent 10 or 20 years (or preferably more) of operation. This paper sets out the results of some initial analysis into areas where it is believed it would be useful for all parties to cooperate. The thinking is at an early stage and further work will be carried out on assessing these different issues in the future work programme of NSCOGI.

The earlier that governments can provide an indication of long-term generation ambitions, the easier it will be to provide clarity around what would be an optimal electricity infrastructure in the North Seas. The Offshore Grid Study being carried out by NSCOGI Working Group 1 will also provide valuable input to the assessment of whether developing such integrated infrastructure would be beneficial. We are working together to develop a framework which would allow individual projects to integrate in future if there is an economic and financial case for them to do so.

Our analysis has shown that developing a coordinated infrastructure requires a high level of cooperation between all the parties involved. National approaches don't necessarily need to be harmonised but they do need to be compatible in order for such an approach to work.

While certain barriers have been identified, they are not insurmountable. There is currently no regulatory regime in Europe which provides an explicit regulatory framework for the development of "hybrid" assets¹. An agreed and compatible approach to the development of such assets is recommended in order to foster their development when this fits with government generation ambitions and when it is economic and cost-efficient to do so. In addition, the consistency between the provisions in the the Renewables Directive, guaranteeing access to the transmission system for renewable generation, and the provisions in the Third Energy Package on conditions for access to the network for cross-border electricity exchanges should be clarified. There is also no mechanism for application of the European Target Model to such a hybrid asset².

High level principles are being suggested as guidelines for NSCOGI Members with respect to the key steps of the development of an integrated "hybrid" infrastructure. The principles should be considered in order to create the opportunity for the realisation of coordinated cross-border electricity transmission infrastructure in the North Seas, when this would be more economic and cost-efficient than separate development of interconnectors and/or radial connection of offshore generation.

These principles are being presented following discussions between Governments, Regulators and TSOs in the NSCOGI member countries. They are split into different categories to reflect different elements of project development. They do not necessarily reflect a chronological outline of project development as various elements are interdependent or may occur in a different order in different projects.

These principles are a set of considerations which will allow for the development of integrated hybrid assets i.e. involving both interconnector and offshore wind generation. They are designed to facilitate coordination and cooperation of all the activities involved, allowing flexibility for different countries to adopt different options for implementation, which can work together while accounting for the specificities of different national arrangements – not all options discussed will be possible for all ten NSCOGI Member countries.

¹ See Annex, "Hybrid" meaning transmission assets which includes both interconnection and grid connection.

² This issue is dealt with in the paper dealing with market arrangements over a hybrid asset.

1. IDENTIFYING THE NEED

1.1 How do we identify that there is a need for capacity and an opportunity to decrease total costs by working together to achieve an integrated project?

National policies in relation to long-term generation priorities provide an indication of government ambitions and help establish where there is a need for infrastructure development. A long term perspective for individual Member State cross-border and offshore generation ambitions and needs is necessary to identify opportunities at an early stage.

These ambitions are taken into account in the development of the European Ten Year Network Development Plan (TYNDP). Other factors are also considered, as illustrated in Diagram 1 below.

Identifying the need for particular infrastructure development, does not have to involve all NSCOGI Member States. It would be useful to develop a process whereby relevant NSCOGI Members interested in a particular opportunity are able to cooperate and share information to help establish whether development of coordinated infrastructure would be more economic and cost-efficient than proceeding independently.

Commercial developers have interests which will not necessarily reflect the wider need for network development. Transmission System Operators (TSOs), Governments and Regulators therefore have an important role to play in identifying the need for infrastructure. Cooperation between future generation site identifiers (in most Member States, the governments) and the relevant infrastructure planner (in most, but not all, Member States, the TSOs) is also essential.

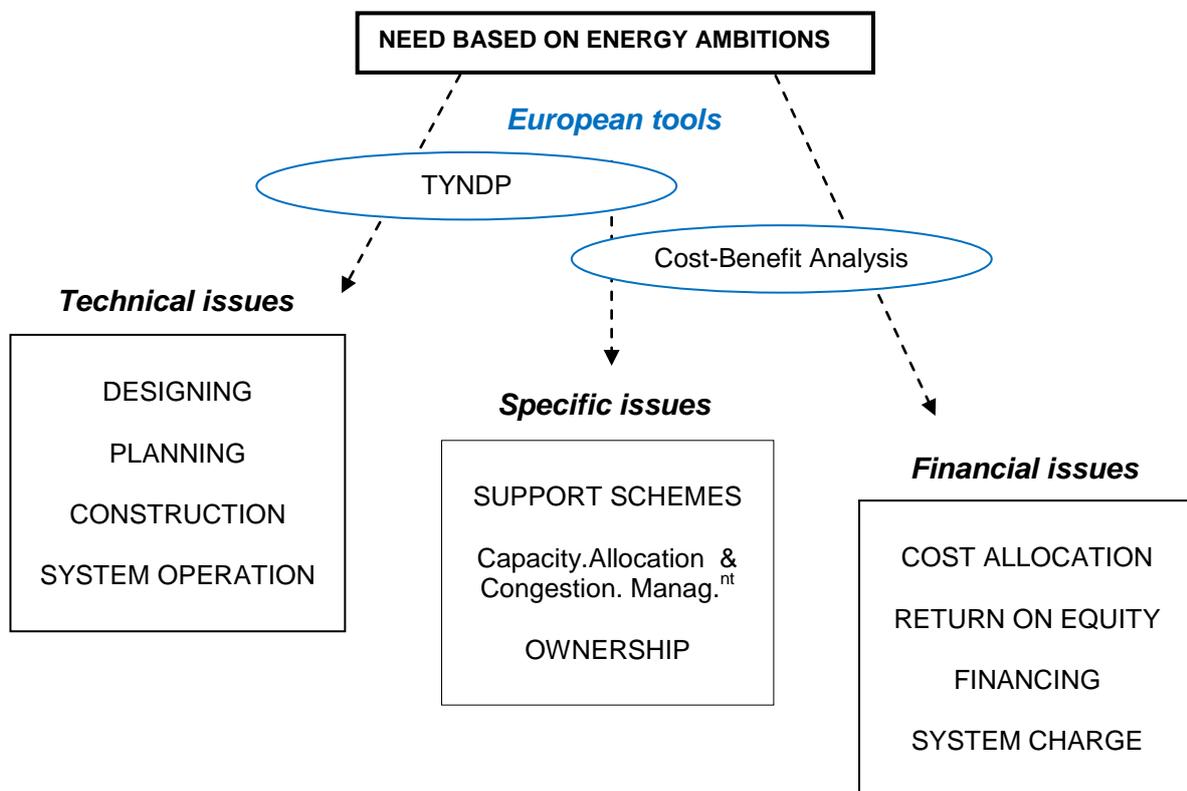
1.2 Suggested approaches to identifying the need for integrated infrastructure:

- Interested NSCOGI members cooperate (either as a group or in multilateral clusters around particular project opportunities) if they foresee the need for coordinated development. For example, NSCOGI Working Group 1 is working on a set of plausible grid scenarios which will help indicate where development of infrastructure in the North Seas might be appropriate. There may be a role for TSOs, NRAs and governments to provide input on national renewable strategies, where it might be appropriate for renewable generation to be developed and also on views on merit orders for 2030+, if possible. This would all assist in developing credible scenarios that would help inform decisions on identifying the case for further cooperation and pursuing more detailed design studies that might initiate developments.
- Developers, whether TSO or otherwise, work together to realise common investment opportunities that lead to economically efficient and optimal outcomes for European consumers. The Third European Energy Package contains a requirement for a European Ten Year Network Development Plan (TYNDP) to identify the need for future electricity infrastructure development in Europe. This could be used as a starting point for such an engagement that would help to identify the need for integrated projects and galvanise support to realise new assets.

Both of these approaches require a common understanding of the resource available and the development potential in the North Seas, in the short, medium and longer-term. They should take account of national renewables strategies and political goals as well as other political considerations which may have an impact in individual countries. There is also a need to be aware that TSOs and other investors need investment signals at the earliest possible opportunity

Another option which was considered but rejected was the establishment of a North Seas TSO and North Seas Regulatory Body to oversee all developments in the North Seas region including identification of the need for coordinated projects. This option cuts across Member State sovereignty, and is thus not a credible option for consideration. Although we do remain open to the benefits of centralised coordinating efforts that will help to bring aspects of the North Seas development together. Where relevant, such opportunities are highlighted elsewhere in this paper.

Diagram 1:



2. TECHNICAL ISSUES

2.1 Designing – how do we facilitate development of detailed, technical design for coordinated infrastructure?

Suggested approach

The approach towards designing North Seas infrastructure will depend upon the need identified, taking account of the quantum of renewable energy in Member State energy policy goals. It could be useful to develop a framework within which all developers could cooperate in order to understand the wider network needs, overall system needs and overall long-term government plans.

It will also be important to consider the technical feasibility and bankability of particular projects. If appropriate technology is not available yet, or if the cost benefit-analysis is not conclusive, for all of the countries involved, it is unlikely to get off the ground.³

- TSO and/or project developers participate in a “coordinated activity” to determine optimal offshore project designs. NRAs and governments to also have a role. Once national wind development zones have been identified by Member States, and development rights granted, TSOs (including third party transmission project developers) and generation developers cooperate to examine the potential for development of integrated infrastructure in those zones.
- Development of an overall conceptual design, or a number of smaller designs involving particular countries and using examples of existing projects to flesh out key issues, could be used to initiate the design of identified opportunities. The European TYNDP is an existing tool which provides proposed solutions for future European infrastructure development. Use of this as a tool for introducing a coordinated approach could be explored, particularly as there will be a requirement for future PCIs to be part of the TYNDP before they will be eligible.

Another option which was considered but rejected was the development of a single “blueprint” for the design of an offshore grid. Given the uncertainty of developments beyond 2020, it is not possible to arrive at a single offshore network design from which individual projects can be initiated. Optimal grid design changes substantially with various input parameters e.g. offshore RES deployment, onshore network reinforcement, conventional generation deployment and merit order etc. However, modelling work could be helpful to identify “least regrets” designs for coordinated infrastructure.

2.2. Planning i.e. consenting, environmental surveys, granting of required wayleaves etc

NSCOGI Working Group 3 is considering this issue in more detail.

For the purposes of this principles paper, the following high level messages can be taken from the Working Group 3 conclusions:

³ The NSCOGI initiative will consider cross border cost allocation in more detail in the second phase of its work

- Predictable decision-making and efficient processing of planning and permitting procedures is essential for reaching legal certainty in order to ensure planning certainty for applicants and investment certainty for investors. Time is one of the key factors which is difficult to predict and to control.
- There are differences but no incompatibilities between the different countries which act as an insuperable barrier to integrated cross-border grid infrastructure development.
- The WG did identify several practical solutions, to improve the coordination between countries and the harmonisation of the permitting process.⁴

2.3 Construction – who should be responsible for constructing shared assets and what issues are raised where different parties must coordinate and cooperate?

The following approaches may be helpful to ensure construction arrangements are not a barrier to the development of coordinated infrastructure in the North Seas:

- Clarity on which party would bear the risk in relation to any delays in construction should be provided upfront. If different parties are involved in different elements of the project, there should be consideration of an appropriate compensation mechanism, should the network asset fail to be delivered in time for generation to connect. Should the constructing party be different from the consenting party, and different again from the eventual owner of the asset, there should be a mechanism in place to allow for rights and risk transfers between all parties involved.
- There should be a mechanism in place to ensure that different kinds of parties e.g. TSOs and third party developers can cooperate in the construction of a cross-border integrated asset. Due to differences in regimes between Member States, constructing parties may be different in different countries. It is not necessarily the case that the same type of party should be responsible for construction in each country, but they should be able to cooperate with each other.⁵

2.4 System Operation – who is responsible for guaranteeing access and ensuring safe, secure and economic operation of the coordinated network in conjunction with the onshore systems?

Possible approaches for ensuring efficient system operation on a North Seas offshore grid:

- Involved national TSOs take responsibility for operation of section of the integrated asset on their territory
- Where third parties have financed offshore transmission assets, a combination of involved TSOs and third parties could each operate their own sections of the integrated asset. Or, (depending on national legislation and regulation in place) the national TSO could still take

⁵ It is recognised that a framework for anticipatory investment could be useful for the development of integrated infrastructure, as could a detailed analysis of how different assets should be defined i.e. transmission or grid connection or interconnector, Both of these issues may be considered in more detail in the next phase of NSCOGI.

responsibility for operation of all assets an guarantee access etc, regardless of asset ownership.

- As stated earlier, an option considered and rejected was the option to instate a single North Seas TSO.

In addition to the options above, a mechanism for system operator cooperation on integrated projects could be helpful. Individual Member States taking responsibility for operation of their own assets could be the most practical approach. Organisations such as CORESO⁶ exist to promote efficient system operation across different Member States so this could be an approach which could be built on for those NSCOGI countries wishing to work together. Current arrangements for interconnectors, which allow for cooperation between different system operators could provide useful insight into how this could work.

3. FINANCIAL ISSUES

3.1 How should cost allocation be addressed? Who should pay for what?

Further work on this issue will be taken forward in the next phase of NSCOGI, post-2012.

3.2 How can equity providers be attracted to integrated projects involving hybrid assets?

What is the return on equity that should be guaranteed?

How to ensure it will be?

These issues will be considered further post-2012.

3.3 How could an integrated asset be financed? Can different parties be involved?

The following approaches may be helpful when considering paying for integrated infrastructure:

- Where the national TSO finances common infrastructure as part of its Regulated Asset Base, the relevant NRA scrutinises and approves efficient costs. Additional risks in relation to the use of new and untested technologies, the possible need for anticipatory investment and the possibility and implications of a change in classification of the asset may need to be acknowledged by the NRA. Whatever the regulatory incentives and returns for the national TSOs in different jurisdictions are, the different approaches applied should be compatible (for the shared asset) and the need for coordination between regulators should be recognised.
- Where the options exists within national legislation and regulatory regimes, third party infrastructure developers may provide financing for coordinated projects and receive regulated revenue stream authorised by the relevant NRA(s). The same issues of anticipatory investment and innovative technologies as identified above may also need to be acknowledged in this case.

⁶ www.coreso.eu

- Supplementary to both options described above (and where national legislation allows) merchant developers may choose to finance integrated projects funded on the basis of congestion rents, renewable support and wholesale market valuation of energy provided.

4. RENEWABLES TRADING

4.1 How do we ensure that renewable generation involved in coordinated projects is appropriately supported?

The application of support schemes should not have an adverse impact on flow efficiency and market arrangements⁷. Clarity on this issue will be a gateway to optimising integrated development in the North Seas, and helping to ensure security of supply.

The decision on how to use the flexibility mechanisms under the Renewable Energy Directive, rests with Member States. . Agreements between governments on the flexibility mechanisms to be used will be necessary to allow renewables trading to work.

Any country may take credit from and support renewables produced in the jurisdiction of another country, under certain circumstances. For example, Member States are required to fulfil their own renewable energy targets before exporting energy to other countries. Further analysis of the different support schemes available in different Member States will provide more detailed evidence on the most appropriate approach to this going forward.

The following approaches should be assessed in ensuring support schemes do not hinder integrated development:

- A common model for Member State cooperation on support schemes
- MOUs between Member States on how the costs and benefits of cross-border projects between particular countries should be apportioned
- Project by project MOUs could detail agreement on how the project's renewable value will be assessed/attributed.
- A commitment to resolve the specific issues created for integrated projects by non-harmonised national support schemes is needed at the same time as identifying the need for the project.

5. FURTHER ISSUES FOR CONSIDERATION

This paper discusses a number of areas where it might be useful for all parties to cooperate, if integrated offshore infrastructure in the North Seas is to remain a possibility. A meshed grid infrastructure in the North Seas may not be achievable, or desirable, in the near-term, by 2030. However, NSCOGI members agree that it would be sensible to bear the option for a coordinated approach between neighbouring countries in mind

⁷ The impact and interaction between different national renewables support schemes may be considered in more detail in the next phase of NSCOGI.

when considering infrastructure development, in order that opportunities for integrated developments, where it would be economic and efficient to do so, are not missed.

The list of issues above is intended to be a guide and is not exhaustive. There are a number of other elements of infrastructure development where cooperation would be useful and which will be considered in more detail, in the next phase of the NSCOGI work plan, along with some of the issues tackled in this paper which may need further or more detailed consideration.

5.1 Ownership of Transmission Assets

The issue of ownership of assets is linked to how the different assets i.e. interconnector, transmission system, grid connection etc. are defined. This definition of assets is something which could be explored further in a continuation of NSCOGI. In addition, if we were considering the option of allowing shared ownership of assets, further analysis as to what this shared ownership might look like would be required.

This could be of particular interest in relation to possible different interpretations of unbundling legislation. As a result of this different interpretation, in some countries a generator may appear to own what is classed as a transmission asset in other countries, thereby contravening the unbundling rules.

There would appear to be similarities between this issue and financing. It would therefore seem relevant to consider the same options for ensuring ownership issues do not hinder the development of an integrated offshore transmission asset.

It may also be necessary to develop a system for transferring ownership of transmission assets between parties involved in the development of an integrated asset.

5.2 System Charges

We are developing a separate paper that is also looking at the issue of system charging, from the perspective of how this interacts with the market design for cross border trading over integrated assets. As a general principle, it may be beneficial if a cost sharing key can be agreed between Member States as part of the negotiations over developing a shared approach to renewables support schemes (or renewables trading).

5.3 Capacity allocation and congestion management

We are developing a separate paper on how market arrangements might work for integration of renewable generation to an interconnector. More detailed analysis on this will be taken forward in the next phase of NSCOGI, commencing January 2013.

ANNEX 1: EXAMPLE OF AN INTEGRATED CROSS-BORDER ASSET

