

The North Seas Countries' Offshore Grid Initiative

NSCOGI 2013/2014 progress report – August 2014

Objectives of the North Seas Countries' Offshore Grid Initiative

In December 2012, Ministers of the North Seas Countries' Offshore Grid Initiative welcomed the significant joint analysis on the rationale for more integrated offshore grid infrastructure, the barriers to its development and possible solutions, that had been carried out by transmission system operators, regulatory agencies and government authorities. They considered it an important first step towards the achievement of NSCOGI's objectives:

1. To contribute to the move to a **sustainable low-carbon economy** while maintaining **security of energy supply in a cost efficient manner**;
2. To maximise the potential of the **renewable energy** resources of the North Seas, taking account of the scale of investments required in offshore infrastructure and necessary onshore grid reinforcements;
3. To identify and **tackle barriers to offshore grid development**, in particular as regards technical, regulatory, market, planning and authorisation issues;
4. To facilitate a **strategic, coordinated and cost-effective** development of offshore and onshore grids.

Ministers indicated that they would like further work done on the validation of the energy scenarios used for long term (offshore) grid planning, assessment of the costs and benefits of a more integrated approach to offshore grid development and possible market and regulatory arrangements for hybrid offshore assets.

Work achieved to date

No regulatory arrangements exist to incentivise investment in and facilitate trading across hybrid offshore structures (interconnectors with offshore wind farms connected).

The NSCOGI regulatory work stream has been developing such proposals and prepared two papers: one on the arrangements for trading across such hybrid structures bearing in mind the proposed EU-wide target model of market coupling ("**market arrangements paper**"); the other on how the costs of such structures might be allocated among interconnector and wind farm developers ("**cost allocation paper**").

The market arrangements paper examines various options for offshore wind generators to trade in the different time frames included in the target model. Emerging ideas have been tested with representatives from the wind energy industry (EWEA), the pan-European electricity industry (EURELECTRIC), the power exchanges (EUROPEX), traders (EFET) and large consumers (IFIEC) as well as the Commission. A number of preliminary conclusions have been agreed. The most significant conclusion is confirmation that **trading across hybrid offshore structures can be accommodated within the target model** being developed for roll-out across the EU, so no specific arrangements need be developed. However, it appears that **different trading options might be desirable for the kind of simple hybrid structure** that is likely to be developed first, namely one wind farm linking to one interconnector, **and for the more complex structures** that might emerge in time, e.g. a number of wind farms linked to an offshore hub. Working through the options has raised a number of other issues which merit further investigation. Further work is recommended to assess the need for the priority dispatch provided for renewable generation under the Renewables Directive, the

effect that possible negative prices might have, and the impact of different renewable support schemes on trading.

The cost allocation paper looks at how costs of hybrid assets might be allocated among interconnector and wind farm developers such that all parties are incentivised to support infrastructure with a net societal benefit. The paper describes six possible allocation methods and evaluates their suitability for sharing the costs between developers of hybrid offshore projects. The aim is to incentivise investment in the most efficient projects from a global perspective while at the same time guaranteeing acceptable costs for all the parties concerned. It is proposed that a **good allocation method should meet a number of criteria**. For example, it must guarantee that each party to an efficient hybrid project incurs a lower cost than would have been incurred with a stand-alone project; it must be compatible with the cross-border cost allocation (CBCA) method being developed under the Infrastructure Regulation for interconnection projects; and it must be adaptable for more complex offshore configurations. A preliminary assessment of the various possible methods on the basis of the criteria showed that there is no perfect method which meets all of them.

The cost allocation methods covered in the paper were discussed with the stakeholder representatives mentioned above. It was agreed that different approaches might need to be used for regulated and merchant investments as the risk profiles were different. Moreover, the support schemes offered might also have an impact. It was recognised that this paper supplements the CBCA work so ways of linking up to this work should be investigated. Although further analysis is needed, the preliminary view was that it was **unlikely to be possible to recommend a single cost allocation method** as the circumstances of each project would vary. A **better approach might be to agree a number of good principles** that investors should bear in mind when agreeing how to share project costs.

In 2012, Transmission System Operators of the NSCOGI region successfully completed the *NSCOGI Grid Study* which suggested that multi-lateral cooperation between the North Seas Countries is the right way to proceed. It showed that the economic effectiveness of a meshed grid increases as offshore wind development increases. However, it is important to always consider the whole power plant and fuel portfolio when studying future scenarios.

It was therefore decided to build on this study by increasing the engagement of NSCOGI in the work that the transmission system operators in the North Seas region are doing on the ENTSO-E 2014 Ten Year Network Development Plan (TYNDP), because the NSCOGI scenarios lie within the envelope of the Pan-European ENTSO-E visions.

In 2013, Transmission System Operators worked up a **number of improvements to the methodology which will underpin the TYNDP process**. Transmission System Operators of the North Seas region presented to NSCOGI the 4 visions used in the ENTSO-E scenario approach and updated NSCOGI on the Cost Benefit Analysis methodology used.

Two of the visions build on national input (“bottom-up”), and two build on a European approach (“top-down”). The visions assume different speeds of European integration and different levels of ‘greening’ of the electricity generation mix, so as to ensure that whatever the market and political developments, the future situation will be somewhere in between

the visions. The TYNDP process (testing of scenario assumptions, market modelling, grid design, grid simulations and re-iterated market modelling) applies a **consistent cost benefit analysis methodological framework**, which will allow different cross-border investment projects to be compared, e.g. for the PCI process, which is based on the TYNDP assessment.

Both the different visions 1 to 4 and the new CBA methodology were the subject of a **number of bilateral and regional consultation meetings**, where member states were represented, and were discussed at the NSCOGI Programme Board. Further, a Long Term Network Development Stakeholder Group for the TYNDP process was founded for this TYNDP process. The establishment of this group was considered appropriate by ENTSO-E in the light of the increased relevance of the TYNDP in the EU and the requirement to increase the transparency of the infrastructure planning process, thus increasing the acceptance and the understanding about both new and existing transmission infrastructure in Europe.

The robustness of long term grid planning will further be improved by the **EU Energy Roadmap 2050**.

In sum, a number of methodological improvements had been developed by ENTSO-E which will be fully implemented under the TYNDP process. The Energy Infrastructure Regulation put in place formal procedures for the regular revisions of the TYNDP and Projects of Common Interest. ENTSO-E also established stakeholder consultation groups to accompany the development of the TYNDP2014. Following the good cooperation between NSCOGI partners since 2010, these TYNDP consultations may be widened even further to allow more formalised consultation also of government authorities from the Northern Seas countries, for example to **focus on the appropriateness of scenarios and their assumptions and also on the possible impact of future government policies**.

A predictable decision making and efficient processing of planning and permitting procedures is essential for project developers. The analysis in 2012 showed possible ways to improve efficient project management and standardization of time frames as well as communication, cooperation and coordination. On that basis, the NSCOGI planning and procedures work stream has decided to address **the differences between Planning and Authorisation Procedures in NSCOGI countries by considering country pairings**, ie virtual case studies of countries between which interconnection may take place. In these Country Pairings, the **generic activities and key milestones will be compared and their differences analysed. Problematic differences between procedures and consent activities will be identified through sharing of common solutions and best practices**.

For each NSCOGI country a **virtual programme** for developing a trans-boundary grid project was prepared and discussed. Comparing **timing, likely duration of procedural steps and critical path activities** between country pairings indicated that undertaking key milestones at the same time in a cross-border context increases complexity of planning and authorization procedures and poses challenges to both project promoters and authorities.

It is expected that the virtual programmes will also provide NSCOGI a valuable basis for the work on a **manual of procedure** which should be prepared by authorities dealing with the

permit granting for Projects of Common Interest in accordance with the new Energy Infrastructure Regulation 347/2013.

Future areas of work

Grid configuration

- Contribute to the further improvement of the long term (offshore) grid planning exercises by establishing a more structural dialogue between government authorities and TSOs on the appropriateness of scenarios, their assumptions and expected policy developments

Regulatory and market issues

- Consider the impact of asset classification on trading across and investment in hybrid offshore infrastructure
- Assess the impact of national renewable energy support schemes on trading across and investment in hybrid offshore infrastructure, taking into account of the Commission guidance on renewable support schemes
- Consider the possible use of long term transmission rights by offshore renewable generators, the need for priority dispatch by offshore renewable generators and the impact of zero or negative prices on hybrid offshore infrastructure
- Consider options for anticipatory grid investment

Planning and authorisations

- Reduce the length and complexity of procedures by working on country pairings between which interconnector projects might take place: collecting, analysing and evaluating information on how these projects might be developed (January-July); identify planning and consenting barriers to transnational projects including practical solutions relating to barriers (July-September); identify best practice and share and review them with stakeholders (September-December)
- Assist the respective competent authorities in taking all necessary steps for efficient and effective cooperation and coordination for projects of common interest which require decisions to be taken in two or more Member States as stated in Regulation 347/2013