

**Webinar stakeholder perspectives on North Sea system integration**  
**20 January 2022**  
**Questions & Answers**

*On 20 January 2022 the North Sea Energy program organised a webinar based on an analysis performed by MSG Sustainable Strategies about stakeholder views and perceptions on system integration on the North Sea. Below are answers to the questions from participants during the session.*

**Q. Did the stakeholder project look for, or found common grounds between all stakeholders that can be actioned immediately? Commitment to such immediate actions, as we know that there is no ideal approach to our energy transition in reaching the agreed NetZeroCarbon in 2050?**

Possible immediate actions that might be supported by multiple stakeholders are developed in work package 7 of the NSE program, where a roadmap towards 2050 is developed. The stakeholder analysis will provide input to the synthesis report of the North Sea Energy program.

**Q. Why would one want to police green hydrogen production locations at sea?**

Policing might be too strong of a word. All uses of the North Sea are subject to safety regulations. Additionally, if hydrogen production at sea grows to contribute a significant share to our energy supply, this is a reason to be mindful of potential security risks related to hydrogen infrastructure. A recent study by the Hague Centre for Strategic Studies details the vulnerabilities of sea-based assets (<https://hcss.nl/news/new-report-the-high-value-of-the-north-sea/> )

**Q. How is government included in this project and what kind of policy environment is needed to promote system integration efforts?**

Government is very much included in the program. As a partner, government supports the NSE program with financial support and through the TKI Wind-op-Zee and TKI New Gas. Government is increasingly interested in the outcomes of our research. A few examples: we discuss the impact of a systematic approach with them, for example in the area of offshore hydrogen production. Or how system integration can be included in the deployment of offshore wind, such as incorporating this in (future) offshore wind tenders. Or when talking about reuse of important existing infrastructures seen in the light of spatial planning.

**Q. What functions should a North Sea system include (Power generation, wind, solar, ...) and their capacities/size?**

That is an important question, addressed (for the Dutch part of the North Sea) in the *Programma Noordzee* for all spatial uses. The North Sea Energy Outlook studies the potential for energy specifically. Generally, all stakeholders agree large-scale offshore wind will be necessary, though there are disagreements about the amount that is feasible and desirable. There is no consensus on other energy technologies such as offshore solar, hydrogen production and carbon storage.

**Q. The Aramis CCS project needs a new pipeline, so that cost extra space again. Is there another solution possible?**

For the Netherlands, the Ministry of Economic Affairs & Climate has published two reports exploring the Dutch industry's need for CCS ( Rapport Nationale CO<sub>2</sub>-opslagbehoefte) and the various initiatives being taken regarding CO<sub>2</sub>-storage in the Dutch North Sea (Rapport Ruimtelijke Verkenning CO<sub>2</sub>-transport en -opslag). See <https://www.rvo.nl/onderwerpen/bureau-energieprojecten/lopende-projecten/overige-projecten/ruimtelijke-verkenning-co%E2%82%82-transport-en-opslag>. From these reports it is clear that Aramis is not the only option for CO<sub>2</sub> transport and storage, but so far the only project, next to Porthos, that has applied for government support (Rijks Coördinatie Regeling) towards implementation. Other projects are looking into opportunities for reuse of existing pipelines and/or shipping solutions for transport of CO<sub>2</sub>.

**Q. Net zero in 2050 for all forms of energy will probably fit in a 1.5 degree scenario. However, for electricity it is necessary that we move faster. IEA states that advanced economies need to have a 100% renewable electricity system in 2035. Can system integration help to make this possible?**

Renewable electricity production is growing rapidly. System integration may help by creating efficiencies as well as address two key challenges. First, electricity from variable renewable sources such as wind and solar has to be able to meet electricity demand throughout the day and year. This requires solutions such as storage, demand response and flexible power production. Second, the share of electricity use will need to increase in order to replace energy provided for example by natural gas for heating. Realising the potential for electrification requires integration and balancing of production and use, as discussed for example in the recent Dutch *Roadmap Electrification in the industry* (<https://www.rijksoverheid.nl/documenten/rapporten/2021/10/15/bijlage-behorende-bij-kamerbrief-routekaart-elektrificatie-in-de-industrie>).

**Q. Is it not true that without a international embraced detailed roadmap towards 2050, energy transition will be very difficult (if not impossible)?**

In the view of the NSE programme, an international roadmap is indeed crucial to fully harnessing the North Sea's potential. The national parts of the North Sea are already highly integrated with regard to their ecology and use. Coordination and collaboration are key to maintaining and improving ecology, balancing spatial uses and enabling a rapid, secure and affordable energy transition.

**Q. Question for Anne-Mette: regarding your past involvement in the LiNSI program can we take the learnings and assure that nature based solutions are included specifically in relation to re-establishing and introducing flat oyster banks?**

The LiNSI program (see [https://ecoeffective.biz/?page\\_id=81](https://ecoeffective.biz/?page_id=81)) was inspired by 'rigs-to-reef' and ecosystem restoration programmes elsewhere in the world. It explored whether it might be possible to at the same time protect the ecosystems that have developed on and around oil and gas structures, reduce decommissioning costs, and then to use part of these cost-savings to invest in active ecosystem protection and the transition to sustainable use of marine resources in the North Sea. A follow-up program, North Sea Futures (see [https://ecoeffective.biz/?page\\_id=161](https://ecoeffective.biz/?page_id=161)) took the learnings of LiNSI further by looking exploring similar questions for offshore wind farms, including how these could be constructed in such a way that they would strengthen natural ecosystems. Since then, especially Dutch stakeholders have been working intensively to facilitate nature restoration

within wind farms and restoration of reef habitats such as flat oyster banks in locations inside and outside offshore wind areas. Within the Dutch North Sea Agreement, nature restoration and multi-functional use of offshore wind farms form crucial elements of the energy transition. Efforts are now made to further develop these concepts into Best Practices for all energy activities. For the reuse of offshore installations as reefs, however, OSPAR regulations and national regulations with regard to liabilities for material left offshore still form major barriers.

**Q. Did you study already to the end of live offshore wind farm? And or second live of the Offshore wind farm re-use of the infrastructure. Do we need new tender specification special for second live?**

The end-of-life of offshore wind farms will be an important question in the future and is generally speaking best addressed during the construction process and through decommissioning regulations that take into account that nature restoration efforts that take place within a wind farm should not be destroyed as a result of decommissioning. It is not a concern that was mentioned in our interviews with stakeholders, but we are aware that a.o. the Rich North Sea Program is currently looking into these issues.

**Q. Thank you all for this great session. Something I missed in the stakeholder review: the technology agnostic approach to the use of offshore electricity production (wind, solar, wave, tidal, other), based on the societal desirability to steer towards offshore cable pooling (more efficient use of public infrastructure). Hope this can be added!**

Thank you, we are glad you enjoyed it. Some of the stakeholder groups are quite agnostic with regard to specific technologies. Their main interest might for example be the spatial impact of the technology (fishermen, other users) or what energy forms best meet their specific energy use (industry). Efficient use of infrastructure through cable pooling is currently most interesting to TenneT (which constructs and maintains the infrastructure) and parties interested in the spatial and ecological impacts of infrastructure.