



# Transforming North Sea energy supply by gas-wind collaboration

In case you missed out on this excellent event PES brings you your exclusive post show report from last month's, 10<sup>th</sup> Offshore Energy Exhibition & Conference, which took place in Amsterdam, The Netherlands under the theme Transformation through collaboration. During the Offshore WIND Conference, part of Offshore Energy, as well as on a discussion square on the exhibition floor, there was attention for collaboration between the offshore oil and gas industry on the one hand and the offshore wind industry on the other and how this can transform energy transition on the North Sea.

On the North Sea, energy transition is taking place under our eyes. On the hand we see strong growth in offshore wind and on the other hand we witness cessation and decommissioning of oil and gas production

activities. At a place on the Offshore Energy exhibition floor called 'Community Square' – designed to cater to the entire offshore oil, gas and renewables community – there was a television style talk-show on the future of

the North Sea, more specifically on the future of North Sea energy infrastructure. The talk-show was organized in cooperation with the 'North Sea Energy program' – a research program financed by the Dutch government.

Participants in the talk-show were Ante Frens, Development and Technical Manager, NAM, a JV between Shell and ExxonMobil and one of the largest Dutch gas producers on the Dutch Continental Shelf, René Peters, Director Gas Technology, TNO, a research firm, Ian Fozdar, Decommissioning Infrastructure Manager, Oil & Gas Authority UK and Arnold Groot, General Manager, Circular Energy, a start-up with a patented concept to produce CO<sub>2</sub> free power from gas. The four discussed possible ways of collaboration between, for example combining infrastructure, services, human capital and knowledge.

**Optimizing offshore grid**

Possible gas-wind or wind-gas collaboration was also a topic at the 8<sup>th</sup> annual Offshore WIND Conference, part of Offshore Energy. In the conference session ‘Oil, gas and wind: friend or foe’ on the second day of Offshore WIND Conference the same speakers from TNO and Circular Energy spoke, together with GROW, a consortium of twenty leading players in offshore wind in The Netherlands. The panel discussed developments in platform electrification, gas-to-wire, power-to-gas, energy storage and hydrogen and carbon capture and storage.

Circular Energy’s idea, presented by its General Manager, Arnold Groot, constitutes a clear case for the benefits of gas and wind collaboration. The start-up from Delft, The Netherlands, aims to build an offshore installation that is both a gas production facility and a zero emission gas fired power plant. The CO<sub>2</sub> that is emitted during power generation will be captured and injected in the producing gas field. The power will be transmitted to shore, making use of the existing and planned offshore power grid where possible. Both the gas industry and the wind industry benefit from this: stranded gas fields can be developed because they get their value from in situ power generation and offshore wind farms have a power line that is used to its optimum.

**Hybrid approach**

Jasper Vis, DONG Energy’s Country Manager in the Netherlands, addressed the interplay between gas and renewables. According to Vis, the energy system must become flexible to absorb a high share of renewables. In this regard, the hybrid approach is a good way forward for the electricity systems, meaning that renewables are being used when production is high, while the system would rely on gas when renewable generation falls. Offshore wind is now cheaper than gas or coal-powered plants, with a price of EUR 65/MWh while gas is at EUR 70 and coal at EUR 72, he pointed out. Nevertheless, gas will play an important role together with offshore wind in future energy mix.

For offshore wind to move forward in the most productive way the industry needs clear targets and stable policy framework for the period from 2020 to 2030, Vis also stated at the Offshore WIND Conference. A ‘wind turbine a day’ method should be adopted, according to Vis, and an ideal size for future projects is between 800 and 1,500 megawatts.

**Merchant model**

‘We need to build wind turbines like we build cars,’ said Pieter van Oord, CEO of Van Oord, at the Offshore WIND Conference. Europe is projected to have 60GW of installed offshore wind capacity by 2030, which requires adding 5-6GW of offshore wind capacity annually. ‘Right now, we are adding 3 to 4 gig watts,’ Van Oord said, further explaining that the increase in volume will lead to the industrialisation of the supply chain.

Offshore wind has the potential to employ more people by 2040 than the oil & gas industry ever employed. The number of those working in the oil & gas sector is 280,000 while offshore wind has the chance to employ 310,000 people by 2040.

Governments are crucial for the speed of energy transition and politicians will play an important role in the development of the industry, according to Pieter van Oord. By 2040, the North Sea alone could reach 230GW of offshore wind capacity, making it the number one source of electricity in Europe, while onshore wind will fall behind a bit due to the ‘not in my backyard’ policy. However, there are some challenges that offshore wind faces when looking at the post-2030 period, and the major one is storage, according to Van Oord. Regarding the model by which offshore wind should be delivered after 2030, van Oord says the





ideal one is the merchant model, which does not involve subsidies.

**Political will**

Bent Christensen, Vice President at Siemens Gamesa, agreed with Pieter van Oord’s statement regarding policy. ‘Offshore wind technology is already at a point to help meet COP21 goals,’ said Christensen ‘and reach 6,100TWh of annual wind generation by 2040.’ ‘But there has to be political will behind it. Currently, the wind energy generation is at 717TWh.’

Looking at Europe in the long run, offshore wind can provide the European countries with energy independence. Christensen went on to address the question of cost reduction and said Siemens is looking at the entire supply chain to cut costs. Specifically, the company plans to reach a 40% cost reduction in foundations. Here, Bent Christensen named the Nissum Bredning project as a real-life example of the efforts to cut the costs. The project serves as a testing site for Siemens’ new technology. Siemens Gamesa is undoubtedly following the developers’ need for more powerful turbines and is looking towards 2024 as a time when 13-15MW turbines will be on the market.

**R&D**

Daiva Matoniene, Rapporteur on revised renewable energy directive and the internal

electricity market at European Committee of the Regions, said that research and development (R&D) needs funding that will help deliver solutions, get them to market quickly and push the offshore wind progress further.

Matoniene went on to emphasise the importance of the European Investment Advisory Hub. ‘Setting up an advisory hub must be a one-stop-shop to simplifying the whole project.’

Regarding improvement of the policies related to offshore wind development, and the input from the industry itself with this regard, Daiva Matoniene said: ‘It is important to clearly define obstacles to growth to simplify procedures for funding.’

Simon Dilks, Head of Nuclear and Renewables Innovation at the UK Department for Business, Energy & Industrial Strategy (BEIS), spoke about the DemoWind project. DemoWind is a European Research Area Network (ERA-NET) Cofund Action programme and Simon Dilks also looked at the consequence of Brexit. ‘ERA-NET will now be more difficult for UK. We have a real interest to work with North Sea partners to do something like this again,’ Dilks said.

**Unique**

With around 20 speakers at the Offshore WIND Conference and another 80 or so at

the Offshore Energy conference and the discussion plaza ‘Community Square’, it is impossible to do justice to the full program. Offshore Energy Exhibition & Conference 2017 brought together 570 exhibitors and 12,145 visitors covering 90 nationalities. Annemieke den Otter, Offshore Energy Event Manager looks back with satisfaction: ‘Never before has the gathering of all players in offshore, from oil and gas to offshore wind and marine energy, been more apparent than this year and never before have we attracted so many international visitors.’

The event brought together industry leaders and (young) professionals during a high quality conference program, at the many networking opportunities and in the exhibition halls. For three days – starting on Monday with the first day of Offshore WIND Conference – Amsterdam was a meeting place for a host of international clients, OEMs, EPC companies and suppliers active in oil and gas exploration and production as well as renewable energy development. Next year Offshore Energy Exhibition & Conference takes place on 22, 23 and 24 October 2018 with the 9<sup>th</sup> Offshore WIND Conference taking place on 22 and 23 October. For more information please visit

[www.offshore-energy.biz](http://www.offshore-energy.biz)