



# **Offshore wind and the wider energy system**

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## **Mark Gainsborough**

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Mark Gainsborough joined Shell in 1980. He has experience in all parts of the downstream value chain, having worked in sales, marketing, supply chain, trading, strategy, Mergers & Acquisitions, and business development. He was appointed to lead the newly created New Energies business for Shell in June 2016 and is now based in The Hague, Netherlands.

In his previous role as Executive Vice President (EVP) Global Commercial, Mark was based in Singapore and was responsible for Shell's Global Lubricants, Aviation Fuel, Bitumen & Sulphur businesses. This involved leading a team of 8,500 people operating in 30+ countries.

Prior to this, Mark was the EVP responsible for Shell's Downstream strategy, mergers, acquisitions and divestments and Alternative Energy. He was the deal executive for a number of multi-billion dollar transactions including the formation of the Raizen JV in Brazil, a world leader in the production of biofuels. In previous roles he developed Shell's refining and future fuels strategy and made some of Shell's first investments in advanced biofuels technology.

Outside Shell his professional interests include the healthcare sector, serving for five years as a non-executive director of one of the UK's National Health Service Trusts. He also served for several years as a board member of the European Petroleum Industry Association and the Low Carbon Vehicle Partnership in the UK. He has worked extensively on a range of environmental and sustainability issues and a few years ago completed a Masters Degree in Environmental Policy. He is a Fellow of the UK Energy Institute.

Large-scale development of offshore wind power calls for a more integrated approach, suggests Mark Gainsborough. Cross-sector collaboration among government, business and society is needed to make this a reality. Delivering offshore wind at scale, says Gainsborough, would help optimize value for all participants.

## CHECK AGAINST DELIVERY

Good morning everyone and thank you for inviting me to join you today.

I'm glad to be standing here on behalf of Shell, here in London, in the UK, where it all started for us with the Blyth project, the UK's first offshore wind project, which was commissioned in 2000. At the time its two MW turbines were the biggest ever seen.

In the subsequent years, we were a positive force in getting the industry going, working in The Netherlands where we, together with our JV partner Vattenfall, constructed the Egmond Aan Zee project, which came on stream in 2006.

Of course it hasn't all been plain sailing and in 2008 we had to exit from the London Array development when it didn't meet our investment criteria. I'm happy to see that Dong and Eon had the stamina to continue working the project with renewed government support, and along with Masdar, saw it successfully inaugurated in 2013.

One could say being here again completes a full circle, and in this presentation, I will share with you where we want to go from here.

### **New Energies**

At Shell, we believe a cleaner energy future is both desirable and possible. We also believe that if society wants to achieve both its environmental and development objectives, energy transitions are necessary.

They will require action in all sectors of the energy system, and they will require scaling up of opportunities. Long-term integrated policies on climate, energy and economy will be necessary, along with a power

market that sends the right investment signals.

We expect that energy transitions will occur at different paces in different places. Through these transitions, we see a continuously evolving and changing role for oil and gas - alongside an increasing share of renewable energies and new technologies to both enable and preserve quality of life for people across the world.

Knowing that Shell's long-term success depends on our ability to anticipate demand for more and cleaner energy, we launched our New Energies business last year.

Our current activities span a wide range of the energy value chain. The New Fuels portfolio includes biofuels, hydrogen, gas-to-liquids, and e-mobility. Renewable Power includes generation from solar and wind, and integrated energy solutions that can combine those renewables with natural gas and storage.

We are also pursuing opportunities to connect customers with new business models for energy, enabled by digitalisation and the decentralisation of energy systems.

Our Shell Technology Ventures fund invests in new promising technologies and business models. You many have seen our recent investment in Kite Power Systems, looking at new ways to capture wind energy.

### **Wind today**

I'm pleased to say (and you may have noticed) that Shell is looking to grow its footprint in wind in the coming years. In the USA, we are already a joint venture partner with 50% shares in six operating wind projects onshore. We also have a 50% share in Egmond Aan Zee, operating since

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2006 with Vattenfall as our partner. And together with Mitsubishi, Eneco and Van Oord, we won the Borssele 3&4 tender in The Netherlands last year.

Thinking about the energy transition in this part of the world, we believe that offshore wind has the potential to be by far the largest renewable resource. The wind tends to blow, but in a densely populated area it will be difficult to find space on land for large amounts of new generation. Fortunately, there is a lot of space in the North Sea; it happens to have good wind speeds, for the most part, reasonably shallow waters, and good market accessibility.

We've known all that for decades, but costs of generation from offshore wind was the stumbling block. It's great to see the amazing cost reductions that have been achieved recently, and I'm proud that our offshore wind team has contributed to that trend as well. It's now finally believable that wind, as the largest available renewable energy resource for NW Europe, can also be the lowest cost provider of energy.

Some studies have concluded that the total capacity potential for offshore wind in the North Sea is around 200 GW or even more. However, we've only installed 13 GW over the last 15 years ... so how do we bring this opportunity for offshore wind to its full potential at a much faster pace?

### Going Forward

Shell believes it starts with a change of mindset. Instead of organizing the next tranche of leases and tenders simply on the basis of meeting national targets in 2030, we would propose that the next phase be thought of as a stepping stone, a de-risking exercise, towards a much bigger offshore wind industry that operates at the scale of the potential resource.

Such large-scale energy resource development is probably not best organized via separate leases for power plants of up to 1 GW each. Instead, we need to scale up.

We believe it is important for the innovations – technical, commercial and financial – to be tried and tested before going large scale. We don't think that will happen if we continue with power plant-sized leases.

Our belief is that industrial development at scale would lower cost, create value across the supply chain, and stimulate economic growth. We believe that a few large, integrated projects, up to 10 GW with an anchor tenant who takes the biggest risk for about half the project, need to be developed to ensure we all learn how best to do this. Think of the cost savings that could be achieved by constructing several hundred wind turbines continuously, like an offshore assembly line, for example. We have the opportunity to learn together how to do offshore wind at scale to optimize value for all participants.

These are the challenges that we as part of the industry would be keen to work on. However, other pieces of the puzzle will also need to be addressed that we, as an industry, are not the natural party to lead. Governments, businesses and society will all have a significant part to play. We believe there needs to be a broad response with cross-sector collaboration on an unprecedented scale.

Development will need cross-border regulatory and legal solutions that need to be created, either as part of the Clean Energy for All package, or through agreements between smaller numbers of Member States.

Market scale and visibility are the key elements that developers need to reduce their risk. We need a long-term, predictable agenda for the roll-out of offshore wind at scale. If that is in place, companies across the supply chain will invest in facilities and in jobs. This includes spatial planning across national borders, where the interests of many stakeholders will need to be balanced on behalf of society.

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Strong price signals incentivize investment and operational decisions, and help de-risk capital investment and reduce market uncertainty. Given the rapid decrease in bid price, the level of subsidies required will continue to evolve with the nature of the leases, advances in technology and the structure of the power market.

Adoption of large-scale renewables increases the interdependency in generation, transmission and distribution, and the end-use of power, including demand-side management. We also need to develop new capabilities in energy storage. At Shell we believe that hydrogen has an important role to play, not only as a transport fuel, but also as a way to store renewable power. Getting all of these pieces in the puzzle to work together calls for a much more integrated approach to planning.

### Global View

So far this has been a story about Europe. We have noticed that other parts of the world with similar fundamentals in their local renewable resource potential and energy system dynamics are paying attention and looking for ways to follow Europe's lead.

That's great. However, it is not realistic to think that those places will see costs of generation equal to Europe on Day One,

especially when there is a desire for local content – which we fully support as a key element of success.

In the early years, investments are needed in infrastructure and facilities, in the training of people and in establishing regulatory mechanisms. This drives up prices in the beginning and can create uncertainty in timing. We believe that leases larger than 1 GW in new markets would create stronger confidence and a better investment environment. And Europe is demonstrating that once larger-scale developments get underway, the future starts to look bright.

Successful energy transitions will require vision, urgency and realism. Vision for a long-term approach to policy-setting, business planning, and investments. Urgency and realism about the scale and costs of orderly transformations, both for energy suppliers and energy consumers.

I'm full of positive energy when it comes to the potential of offshore wind for society, industry and for Shell – here in Europe and elsewhere. With this line of sight to large-scale resource development, Shell looks forward to putting even more of our effort into this part of the energy transition.

Thank you very much.

**“Successful energy transitions will require vision, urgency and realism.”**

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