

Sustainability Practice

Ørsted's renewable-energy transformation

Twelve years ago, the Danish energy company made most of its money from fossil fuels. Today, it's the world's leading offshore-wind power producer. The head of Ørsted's offshore-wind business tells the story of this change.



To stop climate change, companies in every industry must rapidly reduce their carbon emissions. That is no easy task, but a few businesses show it can be done. Ørsted, an energy company based in Denmark, stands out as an example. Twelve years ago, when it was called DONG Energy, the company earned most of its revenues by selling heat and power, 85 percent of which came from coal. Then, in 2009, management announced a major strategic shift: the company would seek to generate 85 percent of heat and power from renewable sources by 2040.

Ørsted invested aggressively in offshore wind and phased out coal. By 2019, it had become the world's largest producer of offshore-wind energy. The company also raised its renewable-generation share to 86 percent—hitting its target 21 years ahead of schedule. In an interview with McKinsey, the CEO of Ørsted's offshore-wind business, Martin Neubert, tells the story of the company's transformation: the strategic decision that started it all, the changes it went through, and the outlook for the future. (The remarks below have been condensed and edited for clarity.)

McKinsey: Back in 2008, DONG Energy was a profitable and stable conventional-energy company. How did the idea of pivoting to renewables come up?

Martin Neubert: At that time, DONG Energy was largely a domestic Danish energy company. Eighty-five percent of our power and heat production was powered by coal, and 15 percent by renewables. For us, one key factor supporting the decision to rethink our strategy in favor of renewables was the failed attempt to develop a 1,600-megawatt coal-fired power plant project, called Lubmin, in Northeast Germany.

We had made substantial investments in this greenfield project during the more than six years we spent trying to develop it. And while the project was supported by the German federal government, we experienced strong local opposition against the idea of building a coal-fired power plant on the Mecklenburg-Vorpommern coastline. This was

the first clear sign telling us that the world was beginning to move in a different direction, and we concluded that there was no sustainable way of realizing the project. Also, in 2009, the global renewable-energy agenda was positioned strongly at the United Nations COP15 [15th Conference of the Parties] climate summit in Copenhagen, supported both by the Danish government and by our board of directors.

McKinsey: How did management assess the company's position and its ability to shift toward renewables?

Martin Neubert: In 2008–09, we formulated a new strategy and vision called 85/15, stating that we wanted to change our generation mix from 85 percent conventional, 15 percent renewable to 85 percent renewable, 15 percent conventional. The 85/15 split, which was decided on by executive management, reflected the ambition to conduct a complete turnaround of our generation mix. It also took into account that DONG Energy had spent three decades establishing itself as a company focused on the generation of conventional fuels. So the expectation was that such a turnaround would have to be completed within one generation, or the equivalent of 30 years.

At the time, I don't think anyone thought we would turn our generation mix upside down within only ten years. But that was not the discussion then. Instead, we discussed what our future growth areas should be: areas where we had critical mass, where we had the right competences, and where we could differentiate ourselves. It became clear that one was wind power, which three of the six companies that merged to become DONG Energy in 2006 had already pursued.

Onshore wind was well established. We had a sizeable portfolio of projects in Poland and Sweden, and we had been involved in projects in Spain and Greece. As for offshore wind, we had early-stage operating projects in Denmark and the United Kingdom and large-scale development projects. That gave us critical mass in wind when we formulated our vision.

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We also had a team of 50 or 60 people working on renewable-energy projects. Some had spent their careers on these technologies, particularly onshore wind. That gave us substantial in-house expertise, backed by a clear understanding of what it would take to develop wind power, technology-wise.

McKinsey: Back then, the technology landscape for offshore wind looked very different from what it looks like now. How did that factor into your thinking?

Martin Neubert: At the time, no offshore-wind projects bigger than 160 megawatts had been built. So we had to ask how we could build large-scale offshore-wind projects in a different way. Could we move from building one highly customized offshore-wind project every two or three years to building one or two more standardized projects every year? What would it take to go from handcrafting to serial production?

Answering that question involved a 360-degree review: the supply chain, our competencies, the financing models. We concluded that we could not do it alone. One challenge was installation. The installation companies in the market were small. We found a considerable risk that they could go bankrupt during a project. That led us to acquire A2SEA as an installation supplier.

We would also need strong partnerships with suppliers of turbines, foundations, and cables. Turbines were a particular issue. Since no purpose-built installation vessels existed, we reasoned that we would benefit from working with a manufacturer on the design, layout, and funding of second-

generation installation vessels. Siemens quickly realized that offshore wind could develop into a large industry. We entered a partnership with them, which included the delivery of 500 3.6-megawatt turbines. At the time, it was one of the largest energy agreements Siemens had ever made.

McKinsey: How did executives and staff react to the decision to take the company in a new direction?

Martin Neubert: There was internal pressure to keep DONG Energy the same. It wasn't unexpected, because we had spent three decades turning the company into a traditional fossil-fuel company. Fossil fuels were our core competence and the focus of our growth strategy. Our employees also perceived that we were the world's best at running coal-fired power plants, and a benchmark for the industry. The skepticism was broad and profound.

Ultimately, though, internal skepticism receded. In 2012, when Henrik Poulsen had just joined as CEO, our portfolio of assets and activities had high exposure to gas and gas-fired power plants. As gas prices dropped in the United States, vast amounts of surplus American coal ended up in Europe, where it replaced gas as the preferred fuel for power generation. That caused us financial difficulties, which made it easier for people to accept the new focus on offshore wind and on the exploration and production of oil and gas, and the moves to divest noncore businesses.

We began implementing the new strategy by establishing a wind-power business unit. I think those of us who were asked to join this business unit saw it as the beginning of an interesting journey.

A group of strong European utilities was active in UK offshore wind at the time. We all thought that something big was going on and that the UK would be the right place to pursue offshore-wind projects at industrial scale.

That proved to be the case when the UK government strengthened its support for offshore wind to help make these projects financially viable. If that hadn't happened, I'm not sure that we would have progressed as fast as we did.

McKinsey: Getting into offshore wind required a multiyear effort to sell holdings and build up new assets. How did management secure the necessary capital even as the company was exiting businesses that were reliable sources of cash?

Martin Neubert: We had multiple new projects in the UK that needed funding. One model would have involved financing them with external debt and then divesting once the projects were operational. But raising debt for each project would not have worked well with our group-level funding strategy. Another approach, partnering with electric utilities, would have been too complicated, because these companies had their own asset portfolios and strategies.

We needed financial partners that could deliver capital and manage their investments while relying upon our experience constructing and operating offshore-wind projects. One structural issue, however, was that we did not want to use project financing, whereas many of our financial investors preferred or were even required to leverage their investment via project financing.

This led us to develop the "farm down" model, in which we could fund our half of a project on our balance sheet and partners could use project financing to fund the rest. With farm-downs happening before commissioning, we provided investors with turnkey project offerings, which would protect them from risks we can manage best, including development, construction, and operating risks. That model resonated with the Danish pension funds, and later with Dutch and Canadian pension funds and other investors.

Had we not developed the farm-down model, we couldn't have funded all these projects in Europe. And the structure that we innovated became widely used in the industry.

McKinsey: What organizational changes took place as Ørsted's portfolio shifted toward renewables?

Martin Neubert: By 2012, our wind-power business unit had grown to hundreds of employees. But it was still working like a start-up. To support new projects, we added whatever resources were needed, which led to inefficiencies. We lacked a proper organizational structure and operating model.

Correcting that was one of the key accomplishments of my predecessor, Samuel Leupold. He introduced our first real operating model, establishing global functions, clear project governance, and a product-line organization that systematically reduced the cost of offshore-wind electricity by eliminating ad hoc or project-specific sourcing and procurement.

During the past three years, Ørsted has also cultivated a "one company" approach spanning our business units. For example, we have established a management-team forum, consisting of all EVPs and SVPs, who meet four times a year to talk about our strategy and strategic enablers such as talent and digital. That forum facilitates open discussions to break silos, align our approach, and build a strong network among senior leaders. In addition, we have reestablished our leadership-forum meetings for our top 400 leaders.

McKinsey: Ørsted has made significant moves in recent years. Can you talk about those, and the rationale for them?

Martin Neubert: The strategic steps we've taken during the past three to five years have focused on turning Ørsted into a global renewable-energy major. The first step was divesting our oil and gas business, which concentrated our business almost entirely on renewables. We also invested in the conversion of our domestic heat and power plants, enabling them to move away from coal toward biomass. As a result, we will exit coal in 2023, and our power generation will be carbon neutral in 2025.

In 2016, we completed our IPO, and DONG Energy, which we were still called at the time, became a publicly listed company. The IPO provided us with the flexibility and access to equity that we need to fund growth. The IPO also gave institutional and retail investors an opportunity to take part in our green transition, while sharpening our profile as a renewable pure-play.

Within the past couple of years, we have reentered the onshore-wind market and moved into solar PV [photovoltaic] and storage solutions. These moves will help diversify our technology mix so we can better meet the demands of our customers. What's important to note is that we are moving into these technologies at scale. North America, for example, is a large market for onshore wind and storage solutions, and we are investing there. Everything we do reflects our vision to create a world that runs entirely on green energy. And while offshore wind has the potential to power the world, we're convinced that a broader technology mix will support the growth of our company even better.

McKinsey: Ørsted's transformation into an offshore-wind leader has been complete for some time. What opportunities do you see for growth in that market?

Martin Neubert: Our ambition is to remain the global leader in offshore wind. In the past two to three years, offshore wind has expanded from a predominantly European market to a global market. We've been a first mover as that shift has occurred. We were the first European developer that went into large-scale offshore wind in the US. We were also the first foreign offshore-wind developer to enter Taiwan. Within a few years, we have developed sizable project portfolios in both markets.

To support our growth, we recently reorganized our offshore-wind business and established four new regions. Moving closer to different markets is important for navigating their development. It also helps with commercial matters like owning wind farms. At the same time, we want to keep the scale advantages, leverage, and standards that our global operations and EPC [engineering, procurement, construction] functions deliver, and so they work closely with our regions.

McKinsey: New horizons for change in the energy sector are coming into view. How does management keep working hard to ensure that Ørsted remains a leader in offshore wind, while challenging itself to gain a strong position in the energy industry's next evolutionary phase?

Martin Neubert: We ask ourselves that regularly. And I have been asked many times, by investors, by the media, and by people within our organization, if we are at risk, considering that bottom-fixed offshore wind is our bread and butter. We value our global leadership position in offshore wind, and we want to retain that. Obviously, we don't want to miss out on major developments—for example, in floating offshore wind. But we must respond as the needs of our customers change.

The ability to reinvent ourselves has proven to be key. In 2006, DONG Energy consisted of some oil and gas licenses. Then it reinvented itself through the merger of six domestic energy companies. A few years later, the company reinvented itself again by establishing a wind-power business unit that became a global leader within a few years. Scanning new horizons and spotting new business areas are essential to Ørsted's strategy and our ambition to become a global renewable-energy major.

Martin Neubert is executive vice president and CEO of offshore wind at Ørsted. This interview was conducted by **Christer Tryggstad**, a senior partner in McKinsey's Oslo office.

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