



E.ON International Media Trip “Offshore Windparks”

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Wind Energy – Business and Challenges

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Ladies and gentlemen,

Also from my end, a warm welcome to our second press trip of E.ON with a focus on Renewables.

I am particularly pleased that this time we will have the opportunity to take a closer look at the offshore business in general and at EON's position and strategy in this business in particular. Over the next 2 days we will share with you the key insights based on facts and real data on the critical issues, challenges and opportunities of this exciting technology. It will be a mix of a presentational overview, a first-hand insight from true specialists and most importantly a visit to some of our sites. We want to outline the strategic importance of offshore wind for our renewables portfolio and hopefully can demonstrate that EON is a true market leader in terms of expertise, ambitions and commitment.

But before we talk about offshore, I would like to briefly update you on how we have progressed our Renewables business in general since we met in April last year in Madrid. Since then we have seen dramatic changes in the world economy that didn't stop at the doorstep of Renewables. I am pleased to say that despite the financial crisis we have made tremendous progress at EON with our Renewables agenda, as you will see in a minute.

The first thing to say is that the Renewables sector has been hit by the financial crisis, just as many other sectors in the world economy. Around the world and in all technologies, wind or solar, we saw many construction projects cancelled or delayed, companies withdrawing plans and many of them even going out of business. With the banking sector in trouble, the amount of credit available for renewables projects decreased significantly and interest rates skyrocketed for the little amount of capital that was available in the marketplace. Particularly Renewables players with weak balance sheets who are dependent on project finance were heavily impacted.

In the US, the lack of project finance was very pronounced and amplified by the fact that the so called tax-equity investors in Renewables disappeared overnight. Those were the Lehman Brothers, AIG and Wachovia, to name a few.

However, the financial crisis is not only a bad news story for Renewables. On one hand, declining energy prices indirectly depressed Renewables revenues. This coupled with a decline in the oil price meant that the competitiveness of renewables against conventional, fossil based power sources decreased as well.

On the other hand, the dramatic fall in the cost for commodities like steel and copper, along with a sudden surplus in the supply of renewables equipment on the market has put a lot of downward pressure on wind turbine and solar equipment prices which had risen strongly in prior years.

There was also a serious question about whether the low carbon agenda would have to take a back seat for stimulus packages that were needed to fix the financial markets. Thankfully, governments have recognized early that the renewables sector could be an ideal platform to mitigate some impacts of the financial crisis:

The EU authorities decided to stick to their guns and established mandatory renewables targets for all EU member states up to 2020. This gives companies like ours the confidence to invest.

The Obama administration in the US recognized the benefits of creating a green economy by delivering a stimulus package in the order of \$22 billion to support the renewables sector. The full impact of these packages will take a while to materialize, but we believe that this green deal will kick-start a massive growth of Renewables in the US. This proves one more time that our market entry into the US 2 years ago has been a prudent strategic move.

We analyzed future scenarios for the renewable industry in great detail and we concluded that with or without a financial crisis this sector will grow materially and sustainably. Hence we decided not to change our strategic direction or water down our long term growth targets. Fundamentally we will stay the course with our aspirational Renewable plans.

A look at our track record hopefully brings across this point clearly: this is the chart we showed you when we last met in April 2008. Along with that, I presented to you our approach to transform the industry

with our boutique to industrial strategy in order to become one of the leading global renewables players.

As you can see we have continued our market-leading pace and despite the financial crisis, kept growing our business steadily. We added almost one Gigawatt of capacity, which equates to a five-folded increase in our installed renewables capacity since we started in May 2007. To put this into context: in 2008 EC&R erected on average one wind turbine every 10 hours.

I will comment on various key milestones and key strategic moves in a minute. But what I am particularly proud to say is that despite this frenetic construction activity today we have had 407 days without a lost time injury on our sites.

Our efforts and moves didn't get unnoticed as this chart from a Finance publication shows. In terms of international coverage combined with installed capacity we have joined the market leader Iberdrola and are already ahead of the pack in Europe. We now have a strong top 6 position worldwide and the 2nd largest annual investment rate of all companies in the industry globally.

Our current installed capacity stands at 2,269 Megawatts, with wind onshore and offshore accounting for the majority of it.

We have established a presence in all attractive renewables markets, with significant additional capacity in Italy due to the asset deal between E.ON and Endesa.

In addition to our aggressive construction program we were still able to extend our project pipeline with new opportunities to over 14,000 MW. In oil industry language one would say: we found more new oil reserves than the oil we pumped out of existing fields, our so-called replenishment rate has been greater than 100%.

On the technology side, we have landed a disciplined, simple, and focused framework going forward. In short, we only engage in technologies that we consider promising and in those where we have the capability to win in the market place. Our investment profile and our resource allocation strictly follow the maturity of a technology, i.e.

we put more money to work in the wind business, spending less Euros on early-stage developments.

Onshore wind remains our main area of growth for the foreseeable future and we have added significant capacity to our operating base. Highlights to note are the Roscoe wind farm in Texas which is in its final stages of construction. It will be the largest onshore wind farm in the world, consisting of 627 wind turbines with a total capacity of 781 Megawatt. This makes us the 3rd largest wind operator in the US, which is the fastest growing wind market in the world.

We will get into offshore wind a little later, but overall we have stepped up our profile significantly and we will be the market leader by the end of the year in terms of operating megawatts and by far the largest player in terms of the size of our pipeline. A key milestone has been the final investment decision, together with our partners, to build the London Array wind farm in the UK. If all goes to plan London Array will be exporting power in time to London in 2013. The first stage will comprise of 630 Megawatts and the second stage will bring the installed capacity of up to 1000 Megawatts, making it the largest offshore wind farm in the world.

On the 4th of June E.ON marked its entry into the solar age. We opened the Malibu production facility for innovative thin-film modules. About 40 Megawatts of solar cells per year are produced together with our Joint Venture partner Schüco. We also opened the first section of our first solar farm Le Lauzet in France using our own modules.

Altogether, you will see us getting involved strongly into solar energy in the future, as we consider solar as a significant future pillar of renewables - in terms of market growth and with an order of magnitude higher resource potential than any other technology. This will also include Concentrating Solar Power. Here you can expect a visible step of EC&R very soon, but I have to keep you curious for the time being.

Concerning biomass, we operate UK's largest dedicated wood burning plant in Scotland, and we will continue our biomass build program with further 300 MW in our project pipeline. Our focus lies on

efficient larger-scale plants – combined with a strict policy on the ethical and sustainable sourcing of fuels.

With the commissioning of Europe's largest Bio-methane plant in Schwandorf in Germany we stepped up the production to industrial scale. This plant is the blueprint for further plants which will come online soon.

E.ON has been involved in R&D of wave and tidal technology since 2005, we have scanned all available technology options in an extensive evaluation of sectors readiness. I think we are one of the few who actually bought one of next generation's Pelamis converters and we are now preparing ourselves for commercial trials in 2010.

Our strategic theme "from boutique to industrial" is not only about size and scale. It also expresses our determination to transform the still inefficient value chain of this young and learning industry. We want to improve efficiency and drive down costs wherever possible, whether it is in the development of projects, procurement of facilities, or on the Operations and Maintenance side.

We have set specific targets for 2011 concerning availability and cost position. All employees of EC&R are remunerated for our achievements against those targets and a variety of specified programs are in place as you can see on the chart. To give you an impression of our actions taken, have a look at our SCADA demonstration outside. It takes you just a few minutes to travel around the world tracking our wind turbines in Europe and the US.

A critical element of our strategy is to foster value creating partnerships. Efficiency improvements cannot be achieved by one party alone but in tandem with other stakeholders in the value chain. We have made two game-changing steps in the last 12 months:

In September, we signed a large-scale purchase agreement with Siemens on the wind turbine side. In addition, this agreement is also a completely new concept of collaboration between manufacturer and operator. We bundle our know-how to enhance the reliability of wind turbine technology and to simplify and strengthen existing processes

and procedures. Both parties, EON and Siemens, work alongside each other and drive the realization of our targets.

Another big milestone – and it is the first of its kind as a relationship between a western energy company and a sovereign wealth fund - is our global alliance with MASDAR, the renewables arm of the emirate Abu Dhabi. We signed that contract in last October. The first tangible joint activity with Masdar is their participation in the prestigious offshore wind project London Array.

I would like to clarify an often mistaken perception about this partnership: the relationship with MASDAR was not intended to fill the gap that Shell left after leaving the London Array consortium. In fact, our joint agreement had been already set quite a while earlier and London Array was simply the first opportunity to demonstrate our seriousness in working together. Masdar and EON do share the vision for the role of the renewables in the future energy mix. And our combined resources, skills and experiences will apply in a wide range of large scale global renewables projects.

Let me conclude the update on our business, before we move to our offshore section:

E.ON has firmly stayed the course even in these troubled times. Since April 2008, our business at E.ON Climate & Renewables has grown further at high pace and we will keep moving fast. Our investment plans have been extended to include 8 billion Euros from 2007 till 2011, every fourth Euro that E.ON invests in electricity generation is spent on renewable energy and we are on track to achieve our ambitious 2015 target of 10 Gigawatt.

Our boutique to industrial strategy has provided focus and effectiveness for our organization and now Renewables is clearly on its way into the core of the E.ON company.

We are now shifting gears to the main topic of our trip: offshore wind energy.

Hardly any sector in the renewables business receives so much attention these days and yet so little is known and understood about this young industry and the technology behind it.

Views about challenges, opportunities, benefits and risks differ significantly, depending on whom you ask. It is the main purpose of our trip to inform you as good as possible about the essentials of offshore wind. We do hope that on the grounds of our extensive experience we can contribute to the debate with real data, tangible insights and facts, not just beliefs.

I am making this point because offshore wind is of crucial importance for many countries in order to reach their renewables targets. And given the size and scale of the respective investments and effort it is of utmost importance to develop a good and importantly a realistic understanding of what is possible and by when. As E.ON, and on the grounds of our experience, we are in close contact with the public sector in various countries and do offer our advice and insight so that hopefully in the end the right targets are set and that costs and implications are well understood.

It is my task to introduce you to offshore wind, but the real fascinating pieces will be presented to you by my esteemed colleagues Adrian Chatterton and Sven Utermöhlen. I can promise to you that particularly in conjunction with the site visits, you will find this insightful and even entertaining.

To start with the clarification of one misconception that people might have at times: offshore is not just onshore put in the water. Offshore wind energy represents an entirely different business model and a whole new approach to accessing wind power. As this data table suggests, offshore means simply more wind and more accessible space where to exploit it. The bigger turbines produce power a lot quicker and it is notably larger machinery that is used...and it has to be much more robust given the harsh conditions at sea. I am sure we all have bought an aluminum chair for sitting at the beaches at some stage during holidays and given the salty conditions, you will have noticed that only two weeks later the first rusty parts show up. Imagine some high tech big machinery that has to operate reliably offshore over at least 20 years, exposed to much more wind and salt, 24 hours a day.

And whilst a smaller onshore farm of 50 MW can be financed by a private company or group of private shareholders, the capital investment of an offshore wind farm is an order of magnitude larger. The first stage of London Array with 630 Megawatts will cost about 2.2 Billion Euro.

Compared to the smooth conditions onshore where you can access any site throughout the year, with offshore and distances between 1 and 70 kilometers off the coast, you strongly depend on the moods of the weather, the wind and the height of the waves. Scroby Sands that we will visit later today is about 2 miles off the coast, you think you can almost touch it. This site is not accessible more than a third of the time due to waves and wind. At our site Alpha Ventus in the German North Sea, the probability of finding 3 days in a row with good weather and waves below 0,5 meters are less than 10%, even in summer. These conditions are needed for the installation of large foundations and turbines with the vessels currently available.

The 2nd misconception that I would like to clarify is that offshore is not offshore. Every offshore wind site has very different and specific features and conditions, like water-depth, distance to shore and importantly the conditions of the seabed. A whole set of different foundations come into play, all different technology, size and scale, and with that different logistics solutions, machinery to install the turbines etc. And we haven't even discussed the phase of maintenance and operations once the turbines are in place.

A few facts about the Offshore wind business as such:

First trials started in the early nineties in Denmark, but real offshore build kicked off only after the year 2000, with the first wind park larger than 100 MW in 2002 (Horns Rev).

Today you find about 1,500 MW installed, mainly in the UK, Denmark and Benelux with a 40, 30 and 20% share each. Offshore is a European topic at the moment I doubt that we will see significant building activity in the next few years outside Europe.

Due to the specific challenges and the required investments, you will find only a few names on the list of active companies, mainly utilities

like DONG, Vattenfall, E.ON, Centrica and some IPPs. I should mention that EON is the only top ten wind company globally that is active in Offshore wind.

On the supplier side, equally only a few companies are truly active in the sector, again a reflection of the significant financial commitment required.

The potential of offshore wind is tremendous. And equally significant are the plans by governments to tap into this resource: UK intends to build nearly 14 GW of offshore by 2020 and even 33 GW to reach its renewables targets. German plans foresee 10 Gigawatt by 2020 and 25 GW in 2030, Netherlands 6 Gigawatts. To put this into perspective this growth would require building about 2 large scale turbines offshore every day until the year 2020!

Against the backdrop of fantastic wind potential on one hand and recognizing the serious challenges on the other we have to understand EON's strategic position in offshore wind.

In short: Offshore is a strategic priority for EON in our Renewables portfolio and is a significant part of our pipeline of projects. We believe we understand the issues and that we have the right approach in order to manage the significant challenges behind it.

We already operate 3 wind farms in Denmark and the UK, with a combined capacity of 100 Megawatts and we build further 400 Megawatts as we speak (Robin Rigg in the UK, Rödsand 2 in Denmark and alpha ventus in Germany). You can read it as a signal of confidence that we recently announced the final investment decision to build London Array, which will be the world's largest offshore wind farm. We will build this wind farm together with our partners DONG and MASDAR.

Our total pipeline for future activities covers over 3000 MW off the coasts off Sweden, Denmark, Germany and the UK, which is the largest offshore pipeline in industry.

Our portfolio of assets and projects cover the seas off Scandinavia, Germany and UK with the best offshore wind resources. These

regions of North-West Europe constitute the offshore wind energy market for the next decade. Our unique regional spread and the variety of conditions gives us a great platform of experience to turn our pipeline into actual offshore capacity.

We have spent a lot of time in order to work out the right strategic approach for the offshore wind sector and in its simplest way it can be described as “step by step into deeper waters”.

From the experience with our projects we defined a so-called 20:20 envelope. It marks the line of up to 20 meters water depth and 20 km distance to shore. It represents the borderline between what has been realised successfully and what is a next horizon. Our quite a learning experience so far didn't come cheap and typically projects outside of this envelope require a step change in technology, process management and effort.

I guess near-shore projects can be compared with running a marathon which in itself is already fairly difficult for most people. Far-shore, deep water projects compares to a long-distance triathlon where you add some 4 km swim and 180 km bike ride before you even get into the marathon distance.

We are building capacity and experience in less challenging conditions first, like in Denmark or UK. Less challenging by the way is a relative statement. For example, over the past 3 years we had to do 1500 site visits of the wind turbines in Scroby Sands, something we certainly cannot manage in far-shore wind farms in the German North Sea.

Once we learn from those projects we will transfer the knowledge to other sites and more challenging conditions. Taking Robin Rigg as an example: our first attempts to install the foundations took nearly one month per foundation. With a better vessel and better procedures we came down to 14 hours.

With growing experience we will stretch the limits step by step and we will only sign up for far-shore projects at a large scale once we understand all implications and have the confidence to deliver. Examples are projects in Germany and in the UK Round 3 that we looking to participate in. The pilot project alpha ventus will mark an

important step of learning and improving here. Cautious remarks from EON in the press about the future of the German North Sea projects should not be misread as pushing-back attitude but they reflect simply our up to now experience of all challenges. I am convinced that ultimately far-shore projects will happen, but it will take more time and effort to build them than many people would like to see. This will become clearer to you during our visit, I am sure.

This brings me to the overview of our offshore roadmap: For 9 years we have continuously advanced our reach and already invested about 1 billion Euro into it. The future pipeline will continue to see projects in all geographies that we are currently active in and that we feel we understand best.

To conclude:

Offshore is a fairly new, extremely complex business and entirely different from onshore wind. It has great potential which is worth exploring. But if we want to tap into it we have to master extreme technical challenges and there are many lessons still to learn.

EC&R has a leading competence in offshore-wind energy on the grounds of extensive expertise in the building and operation of offshore wind farms across very different conditions and geographies.

Offshore is a key element of EON's Renewables strategy and we will push forward our extensive project pipeline in Germany, Scandinavia and UK. We strongly believe in our step-by-step approach which will allow us to sensibly grow our business in more challenging areas and maintain and even extend our leadership position in the sector. Thank you!

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