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„In the end everything always runs smoothly!“

Interview with Carsten Schulz, Manager of Commercial Project Development in Germany

What does commercial project management entail?

Carsten Schulz, authorised signatory at wpd: The main focus of a commercial project manager is on structuring a wind farm project from a business and legal point of view. On the one hand we calculate and assess all the planned onshore projects in Germany, apply for the appropriate loans and support the banks during the entire investment or construction phase. Our responsibilities also extend to structuring the project in terms of corporate and civil law. If the decision is taken to sell a project, we help to design the sales process by producing relevant sales memoranda and supporting the entire Q&A process.

How can the general sequence of a project be described?

C. S.: We distinguish between in-house developments and purchased projects. In our in-house developments we cover the entire value added chain, from the choice of location, signing licensing contracts, construction planning through to construction and commissioning. In the case of a purchase, we take over when projects are at various stages of completion and we add our own processes depending on how far advanced the project is. We are able to take over a project regardless of its stage of development due to the know-how we possess in all technical departments.

How many employees are working on these areas?

C. S.: As there are so many different areas which make up the valued added chain of any project, there are of course a lot of employees involved in any one project which brings with it many different interfaces. Depending on the progress of the project, new departments join the project while others have already completed their work. Ten or more people may be involved in any one project.

And how has your department grown?

C. S.: There are currently 17 people in my department and roughly half of them are commercial project

managers. To this you have to add four employees who deal almost exclusively with property issues, two lawyers and three members of staff who form the interface with the group controlling department and who are mainly responsible for questions of evaluation. We have experienced a moderate rise in the number of employees in the last few years due to the number of additional projects and their increasing complexity.

What were the most exciting projects and what was the biggest success?

C. S.: There are special features in every project. Sometimes things can get tricky and then we work together to find solutions. In the end everything always runs smoothly and in that way every project is a success – I wouldn't want to single out any one in particular. Even a project with „only“ two turbines can be complex whereas one with 15 turbines has a different financial impact on the company due to its size alone.

What are the advantages of the new EEG? (Renewable Energies Act)

C. S.: Security of planning! The fact that the Renewable Energies Act has been passed makes it much easier to organise finance. Constant discussions, on the other hand, create uncertainty with the banks and the planning companies as at the end of the day the most important input parameters are missing, namely the level and term of the remuneration to be used. This can delay the entire finance process or even cause a project to fail if this gap in the process cannot be closed.



Dipl.-Kfm. (FH)
Carsten Schulz, wpd

Photo r: construction of a wind farm in Treppendorf (Thuringia). The wind farm has two turbines of type Enercon E-82 and has been on the grid since July 2014.



Crucial information on the wind

Measuring the wind around the world: Of freezing temperatures and racing pulses

wpd's technical department, „Site Assessment“ onshore, consists of meteorologists, environmental scientists, engineers as well as energy and environmental technicians. This team is based in Bietigheim-Bissingen, supported by three colleagues from Bulgaria in the field of data controlling and data analysis and, working with project management, it conducts wind measurements at home and abroad to enable the wind potential and the energy yield at the relevant project locations to be determined with the greatest possible accuracy.

There are often special challenges when working abroad as the team knows only too well: temperatures below minus 20 degrees in winter lasting for many days. Erecting a wind measurement mast that not only delivers reliable wind data throughout the winter, but also permits a detailed analysis of the icing characteristics for later wind turbines. That is a challenge even for all the collective expertise in this field. Nevertheless we took the challenge on in Finland using a generator with a 650 litre diesel tank, a camera, heated sensors and a mast. Naturally there were setbacks. The most spectacular of them caught us out on Christmas Eve when the lights went out just in time for opening our presents. But today we are pouring over amazing data, full of enthusiasm and curiosity. At last we are seeing things we could only previously suspect. And all that in spite of an average of only 0.9 hours of sunshine per day.

In South America the sun shines for longer but there too there are special conditions to contend with: daily cycles where you cannot help but think there must be a fault in the system. Vertical increases in wind speed such as you never see elsewhere. Wind speed frequencies which most definitely cannot be described by a Weibull distribution. At times aquarium-like levels of water in the data log box: meteorologically speaking, Chile is a very unusual, highly exciting country that places high technical demands on the evaluation of wind data. It's a country that gets the meteorologist's pulse racing. Or else his heart stops altogether if, as happened last year, a pilot spraying



the rape fields doesn't pay attention and flies his plane into the anchor rope for our 120 metre mast and crashes. Luckily the pilot is fine, the mast unfortunately isn't.

Scotland, too, is a windy country. The monthly average wind speeds there are sometimes over ten metres per second, at a hub height of 70 metres, it has to be said. Nevertheless the measurement masts for these projects are not a windy affair as they are designed to be stable enough to meet these requirements and what the appetite for high energy yields.

Professional wind measurements are also increasingly needed in central and southern Germany to arrive at meaningful conclusions about the wind conditions in hilly or mountainous locations. Flexible deployment in barely accessible terrain requires alternatives to the classical measurement mast: SoDAR units send acoustic signals into the air and LiDAR units emit light pulses – the backscattered sound or light waves are then analysed by our technical department.

The Site Assessment Team (from l to r): Melanie Konrad, Dr. André Moser, Dr. Marlen Vragel, Volker Riedel, Thorsten Gaupp, Arkadi Reile (Management) and Ines Richter. Our colleagues from Bulgaria are missing from this picture: Martin Iliev, Dmitri Dubov and Prolet Hristova.

Offshore turbines on the grid

The Butendiek offshore project, under construction since March 2014, is on the home straight. All the foundations are finished, the transformer substation in operation and over half of the turbines have been erected. The turbines have been producing electricity since February 2015. All 80 turbines are scheduled to be on the grid by the summer and the wind farm will supply renewable energy to around 360,000 households.



Butendiek

Number of turbines: 80

Type: Siemens SWT 3.6-120

Rated power: 288 MW

Location: Germany

Commissioning: 2015



Hohenseefeld II

Number of turbines: 5

Type: Vestas V-90

Rated power: 10 MW

Location: Brandenburg

Commissioning: 2014/2015

Implementation in six months

After a planning phase lasting several years, wpd has extended the Hohenseefeld wind farm. The five wind turbines feed the power they produce into the grid via a dedicated, newly erected transformer substation. The particular challenge with this mixed project consisting of in-house development and collaboration with external project developers, was to coordinate all those involved. Good teamwork and a largely problem-free construction process ensured that the project was realised in just six months.

Dalwitz

Number of turbines: 9

Type: Enercon E-101

Rated power: 27 MW

Location: Mecklenburg-Western Pomerania

Commissioning: 2013/2014

A major ceremony after seven years

Protection of species, military air safety, inconsistent construction soil – those were some of the reasons why it took around seven years from the first contact until the ceremonial opening of this wpd project. However, 250 guests came to the opening ceremony held in excellent weather, and the turbines are now generating environmentally friendly electricity which can supply the needs of around 20,000 households.



Jerichower Land

Number of turbines:
3

Type:
Vestas V-112

Rated power:
9 MW

Location:
Saxony-Anhalt

Commissioning:
2014

Unusual transport

This joint project with e3 GmbH saw the deployment of a „Blade Lifter“. It transported the almost 55 metre rotor blades, set upright at a 60 degree angle, through woods and villages to the location of the wind farm – safely and saving resources in the process.



Partner project in the Duchy

wpd has set up a dedicated transformer substation at a distance of five kilometres from the Wangelau wind farm in the Duchy of Lauenburg. The turbines were commissioned in December 2014 with collaboration partner, naturwind.

Wangelau

Number of turbines: 5

Type: Nordex N-117

Rated power: 12 MW

Location: Schleswig-Holstein

Commissioning: 2014

wpd with new design

Never change a thing till M..arch comes in

Just in time to coincide with the achievement of wpd AG's latest milestones – among other things we cracked the 1,000 megawatt mark for wind farms we own ourselves – our newly designed website went online in March, and visitors to „EWEA Offshore“ in Copenhagen were able to get their first impression of our new exhibition stand. There are also new company brochures, this edition of wpd Inside and much more besides in a new design.



Opportunities in the French offshore market



Vincent Balès,
wpd offshore France

Photo above: Wind
measurement mast
installation at the
Fécamp location

The final version of the new French law on the energy turnaround is expected in the summer. The draft was already passed in October. MPs agreed on defining common targets to achieve the energy turnaround, strengthen France's independence in terms of energy and combat climate change.

Among other targets, the primary consumption of fossil fuels is to be cut by 30 percent between 2012 and 2030. The nuclear proportion of electricity generation is currently at 75 percent and is to fall to 50 percent by 2025, while the share of gross energy consumption enjoyed by renewable energies is to rise from its current level of 18 to 23 percent in 2020 and to 32 percent by 2030.

Plans for wind power provide for the development of 19 gigawatts onshore and 6 GW offshore by 2020 as well as an accompanying saving of 16 million tons of carbon every year. An investment programme for electricity production over several years has been set up for this purpose, and it is to be renewed every three years. The first of these programmes is likely to start at the end of the year and will be fixed for the period from 2015 to 2018.

Managing Director, Vincent Balès, explains in a short interview the contribution that wpd offshore can make in France.

When did the French offshore story start?

Vincent Balès: wpd opened a French offshore office in 2007. At that time there was not one single offshore project in France. But we had signed up to the target of 6 GW by 2020 which signalled the intention of the French authorities to exploit the benefits of the

offshore potential. Our team initiated the process for determining and developing the locations for several projects, and then concentrated on the most promising ones: Fécamp and Courseulles in the English Channel.

And then the government started the procedure for putting projects out to tender ...

V. B.: The authorities classified the „best projects“ and set up a competition for them. Five projects were put out to tender in 2010, among them the Fécamp and Courseulles sites secured by wpd. It was crucial for us to put together the best team to win both these projects. For that reason, we decided to enter into a partnership with EDF and Alstom because the development of the national industry was one of the main criteria in the rules. And so we were successful and won „our“ two projects!

What stage are Fécamp and Courseulles at today?

V. B.: We are working intensively on these projects to enable an investment decision to be made in 2016. In the last three years we have conducted several offshore investigations, one measurement mast was set up in the Fécamp location and we have submitted an application for approval. The team is now focussing on the priorities in the bidding process for the various elements – i.e. foundations, turbines, transformer substation, cabling. At the same time, Alstom has set up a factory in the west of France to produce the turbines.

Are you working on other projects too?

V. B.: Yes, we are preparing for future tenders and we have positioned ourselves for three projects. So far a total of 3 GW has been awarded, and to meet the target of 6 GW, a further six projects are required. The authorities are planning a tender before the end of the year, and we want our projects to be successful!

How can wind farm expenses be reduced?

Fixed expenses over long periods of time provide planning certainty for wind farm operators. Nevertheless, there is a permanent focus on reducing costs. Particularly in years when winds are weak where the aim is to compensate for possibly reduced yields through other areas of the business.

If the design of the contract can be adapted to meet the current reality for a wind farm, this strong link between expenditure and financial growth represents the most effective means of making savings. Optimum solution: agree sensible minimum values combined with a strong link to any excess; this can be the way to establish a base line. If the wind farm exceeds or fails to meet its earnings before depreciation - but after interest and tax – the remuneration will increase or reduce accordingly. If appropriate, caps can be agreed.

If the wind farm has been operating for a long time, it will probably only be possible to adapt contracts in times of demonstrable crisis. In the case of existing wind farms, business and management costs, leases, interest and maintenance are regularly fixed for a certain length of time. But here too there is potential:

It is worth comparing prices for insurance as the range can be enormous. The fact that the control room at wpd windmanager is manned at all times guarantees close supervision of the turbines, and optimum operational management can be demonstrated. The early detection of faults reduces maintenance costs and downtime. That can be proved on the basis of the insurance claims made and leads to lower costs.

Finance costs can also be reduced. The interest on borrowing represents around 15 to 25 percent of all operating costs during the lifetime. For the first ten years, this is nearly always the largest cost item. Whereas in the past we were able to save more than half of the interest expenses by rescheduling the debt, premature repayment is today subject to corresponding compensation charged by the bank. But in some cases this is negotiable. And if you are prepared to accept the risk of interest rates going up, you can finance part of the investment on flexible terms and with no fixed rate of interest. That means you will derive full benefit from low interest rates and you can make repayments at any time.

There is strong competition with regard to maintenance as a result of independence from manufacturers. It is often possible, therefore, to negotiate significant price reductions when contracts come up for renewal without having to switch to full service contracts. In the case of gearboxes, wpd windmanager has been able to reduce the average maintenance costs by 15 to 20 percent every year for the last ten years.

We regard the servicing costs as the most interesting cost component. The tendency to conclude full service contracts is unbroken on the market, and strong competition has meant that full service contracts are now being offered even for turbines which have been in operation for some time. That provides security - as servicing costs are the hardest to predict. On the other hand, every one also knows that a full-service contract for a larger quantity of turbines must be expensive.

There is no general formula for realising savings potential and there are usually restrictions and dependencies in place which lead to many accepting the cost situation as a given. However, due to its many years of experience, the number of wind farms it looks after and the exploitation of synergy effects, wpd windmanager is in a position to recognise the potential for savings and to act accordingly.

Ready to go into action: Service team from wpd windmanager's technical department.



wpd onshore GmbH & Co. KG

Stephanitorsbollwerk 3 (Haus LUV)
28217 Bremen
T + 49 (0) 421 168 66-10
F + 49 (0) 421 168 66-66
info@wpd.de
Dipl.-Kfm. (FH) Carsten Schulz

wpd europe GmbH

Stephanitorsbollwerk 3 (Haus LUV)
28217 Bremen
T + 49 (0) 421 168 66-10
F + 49 (0) 421 168 66-66
info@wpd.de
Dipl.-Oec. Ralf Ketteler

wpd offshore GmbH

Stephanitorsbollwerk 3 (Haus LUV)
28217 Bremen
T + 49 (0) 421 168 66-10
F + 49 (0) 421 168 66-66
info@wpd.de
Achim Berge Olsen LL.M.

wpd windmanager GmbH & Co. KG

Stephanitorsbollwerk 3 (Haus LUV)
28217 Bremen
T + 49 (0) 897 66 00
F + 49 (0) 897 660 99
windmanager@wpd.de
Dr. Klaus Meier

Legal notice

Publisher

wpd AG
Stephanitorsbollwerk 3 (Haus LUV)
28217 Bremen
T + 49 (0) 421 168 66-10
F + 49 (0) 421 168 66-66
info@wpd.de

Editorial

Christian Schnibbe, Tobias Engelken

Photos

wpd, Fabien Montreuil

www.wpd.de