HUSUM DAILY

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Wednesday 16 September 2015

Emmanuel Previnaire – from Oscars to offshore

Oscar-winning company Flying-Cam branches out into the wind industry

It is not every day that you meet a two-time Oscar winner at an exhibition for the offshore wind industry. And yet, at HUSUM Wind 2015, the worlds of international cinema and renewable wind energy will collide. The company aptly named Flying-Cam SA, a first-time exhibitor at the trade fair, has developed a remote-controlled helicopter fitted with a motion picture camera.

In the last 25 years, Fly-Cam's CEO and founder Emmanuel Previnaire has made a name for himself in the Hollywood film industry, providing aerial shots at locations that regular helicopters or camera cranes cannot reach. As a student he had sought a way to combine both his passion for remote-controlled helicopters and his love for making films, and developed the first unmanned free-flying close-range aerial camera for motion picture photography as his thesis at the Directors Film School in Belgium (IAD).

Since its inception, the flying-cam has been used for thousands of projects in more than 75 countries. For his achievements, Previnaire has received two Academy Awards – the first in 1995 for the invention of the flying-cam technology and the second in 2014 for its development. Today, his film credit portfolio includes productions like Harry Potter, James Bond, Mission Impossible and Transformers.

In the past ten years, the technology of unmanned flying vehicles has leapt forward. The development of drones and the manoeuvring of these vessels has opened up new markets for Flying-Cam SA, and, as Previnaire explains, 'it was obvious to me that we had to move to other fields than the movie industry and use the competence acquired in film to expand in other industries'. The company now spans five fields of expertise and services: industry (including inspections of machines and wind farms, precision farming and forestry), military (drones), academic (research and development), government (emergency and disaster response, police, homeland security) and entertainment (motion picture services).

At HUSUM Wind 2015, Flying-Cam SA will present the newest flying-cam model called SARAH. The adaptation of the Flying-Cam services for the offshore wind industry is based on the safe remote-controlled inspection of wind turbines. As Previnaire notes, 'The requirements are all about getting precise data on the status of the turbine for people to perform maintenance on it. We've recently done a demonstration in Ireland, where we were able to fly very close to a turbine, even while the rotor blades were spinning, and demonstrate the ability to zoom in all the way and see details with a high precision.' As can be seen at the Flying-Cam booth 2A13 in Hall 2, this application will make wind turbine inspection faster, safer and more efficient. At the exhibition Flying-Cam hopes to meet companies with whom it can develop the software to collect and analyse the data from the helicopter and offer a complete service package for the safe, precise and fast inspection of offshore wind farms.

Emmanuel Previnaire

Wind measurement at the spinner: higher yield, better insights

iSpin sets new standards for optimising wind turbines

With the patented iSpin system, wind conditions can be measured more accurately than ever before, resulting in higher yield, better insights and lower loads. To achieve this, iSpin uses proven ultrasonic technology and measures the wind where it first hits the wind turbine: directly at the spinner, in front of the rotor. Conventional wind measurement at the nacelle behind the rotor can be inaccurate due to turbulence. The iSpin sensors, intended for permanent installation, measure and monitor the power curve in accordance with IEC 61400, as well as yaw misalignment, turbulence intensity and flow inclination. To enable as many operators as possible to benefit from accurate measurement data, we are offering the iSpin system for a fixed monthly fee. The best thing is that the additional yield, which can be generated by correcting yaw misalignment, can more than cover the service fee.

Discover an entirely new transparency concerning your wind turbine's productivity.
We'll be happy to make you an individual offer.

Visit us in hall 3, booth 3B08

iSpin measures and monitors:

- Power curve
- Yaw misalignment
- Turbulence intensity
- Flow inclination

www.ispin.info

ROMO WIND
WIND KNOWLEDGE IS WIND POWER

Congress programme Wednesday 16 September 2015

Time	Auditorium	Room 6	Room 2	Room 1	Room 3	Room 4	Room 5
10:00–10:30							D23 **Deutsche Energie-Agentur (dena)** **WISE Power-Workshop** Review von Handlungsempfehlungen zur Akzeptanzsteigerung von Windenergie. WISE Power-Workshop: Review of Social Acceptance Pathways for Onshore Wind Energy
10:30–11:15	D6 **Husumer Volksbank eG** Die Zukunft des Strommarktes (Interne Veranstaltung) The future of the electricity market (closed event)	D8 **Statkraft** Grüner Strom und seine Vermarktung – Rückblick 2010–2015 und kommende Herausforderungen bis 2020. Green power and its marketing – review 2010 – 2015 and expected challenges until 2020.	D12 **KTW Umweltschutztechnik GmbH** Fundamente und Tragwerke – Sichere Ertüchtigung und Instandsetzung Foundations and supporting structures – Safe repair and improvement	D14 **Siemens AG** a) Elektromagnetische Verträglichkeit b) EisMan/ErzMan a) Electromagnetic compatibility b) EisMan/ErzMan	D19 **NOW GmbH/PEC Management & Solutions GmbH** „Automotive meets Wind" „Automotive meets Wind"	D22 or (depends on the participants) **Techimp HQ S.R.L.** Prüfung und Überwachung von elektrischen Betriebsmitteln in Windkraftanlagen Testing and Monitoring of Electrical Components in Windfarms	
11:30–12:15		D9 **Dirkshof** Parasol – Die technische Lösung zur umweltfreundlichen bedarfsgerechten Kennzeichnung von Windenergieanlagen Parasol – The technical clean solution for an avition warning system	D13 **Fraunhofer ISIT** Workshop „Innovationscluster Regenerative Energien" Workshop cluster for renewable energy	D15 **Deutsch-Polnischer Windenergie Club** Polen: Auktionssystem 2016 – Chancen und Risiken Poland: Auction Support System 2016 – Opportunities and risks	D3 **EMD Deutschland GbR** windOPS: Das neue Tool zur Überwachung der technisch-ökonomischen Leistungsperformance von Windenergieanlagen (geschlossene Veranstaltung, Info am Messestand Halle 4 A11) windOPS: The tool to control the technical and economical performance of wind turbines. (closed event, please ask for further information at stand 4A11)	D23 **Akzonobel** Neue Wege im Korrosionsschutz für Windenergieanlagen A novel method to protect offshore wind structures in atmospheric conditions	
12:30–13:15		D10 **GWEC – Global Wind Energy Council** WCRE Workshop „Legal framework for onshore wind in the EU and emerging markets"		D18 **GWEC – Global Wind Energy Council** tba.	D20 **von Zanthier & Schulz, A1 Europe** Polen: EU Finanzierung und steuerliche Optimierung von Onshore-Windparks EU Financing and tax optimization of Onshore wind farms	D24 **Siemens AG** Presseveranstaltung Lunch & Learn: Wie Siemens Windtechnologie stabile Netze unterstützt Press Event Lunch & Learn: How Siemens wind technology supports stable grids	
13:30–14:15		D10 **Global Wind Energy Council**	D13 **Fraunhofer ISIT**	D18 **GWEC – Global Wind Energy Council**	D20 **RSM Germany** EEG 2014 & Co. – So geht Windkraft wirtschaftlich – Basics für Einsteiger und Specials für Fortgeschrittene. The economy of wind energy – basics for beginners and news for advanced experts	D25 **VDMA** Workshop zur Windindustrie Sicherheitskultur in Deutschland Workshop Wind industry Safety Culture in Germany nur geladene Gäste by special invitation only	D24 **M.O.S.S.** Windpark-Planungs- und Prozess Analyse: Dienstleistungsangebot zur Optimierung des Windpark-Planungsprozesses Windfarm-Planning and Process Analysis): Range of services optimizing wind farm planning processes
14:30–15:15							D25 **GE Wind Energy GmbH** Die neuen leistungseffizienten Anlagen und Serviceangebote von GE Wind für den deutschen Markt GE's new performance-optimized systems andservices for the German market
15:30–16:15	D7 **Renewable Energy Hamburg, windcomm schleswig-holstein, WT.SH, Germany Trade und Invest** Deutscher Onshore Wind – Perspektiven für Investoren im Europäischen Markt German Onshore Wind – Perspectives for Investments in the Leading EU Market			D17 **AMSOIL Inc.** Erweitern der Getriebelebensdauer – Auswertung der Verschleißrate von Getriebeöls für Windkraftanlagen Extend gearbox life time – Wear Rate evaluation of Wind Turbine Gear oil Brands	D21 **SeebaWind** Premium plus Verträge unter der Flagge von Deutsche Windtechnik Premium plus contracts under the lead of Deutsche Windtechnik		
16:30–17:15		D11 **windConsultant** Podiumsdiskussion zum Thema: Wandel der Energie-Landschaften – eine notwendige Kontroverse Changes in the energy landscape – a necessary controversy			Geschlossene Veranstaltung Closed Event		
17:30–18:15							

Small and medium wind turbines at HUSUM Wind

Lely Aircon 30 - First installation Bavaria

There is a broad range of uses and sizes of wind energy installations. Only 10 per cent of the world is highly populated and can be served by large wind turbines, while 90 per cent of the world is rural and does not have the infrastructure for big wind turbines. In order to accommodate large turbines in rural areas one would have to lay an expensive thicker cable. Then there is another thing. When farms are refurbished there is usually a need for less labour but more energy use. So if large turbines are impractical but more energy is required it is important that there is more self-sufficiency for rural areas with suitable wind turbines at all places where that is possible. However, it would seem that each time there are fewer manufacturers of small and medium wind turbines at the Husum fair.

This may be because small and medium wind will be featured at the New Energy Husum fair being held between 17 and 20 March 2016. During this fair there will be the seventh World Summit on Small Wind (WSSW2016) organised by the World Wind Energy Association (WWEA).

Easywind

So what can you find in the way of small and medium wind turbine manufacturers at Husum now?
Easywind is as always at the fair in Husum and is still proud of its wind turbine in Niebüll that has already lasted for 18 years. The company can be found at booth FG HE, near the main entrance in front of Hall 1 and easily reached using the golf-car service. MAIT (booth 1E01), known for its megawatt turbines, now produces a 60kW turbine for rural areas. Enerkíte (booth 1D09B) is developing a high wind solution. At the booth you can see a video of the company's test with a 30kW turbine. If they succeed wind could be a constant power supply for many areas. Next year the company plans a 100kW turbine. WINDnovation (booth 2E09D) designs rotor blades for large turbines but also develops turbines in the 60kW to 1MW range. At present, 15,200kW of its wind turbines are already in operation. BSgreen (booth 4D14) is a supplier of used turbines, and 80 per cent of the company's trade is in turbines under 1MW. WIV (booth 2A11) provides a trade platform for used turbines at www.wind-turbine.com and will be giving a presentation at 17:30 on Thursday 17th in room 2. Envergate (booth 5B40) has 22kW and 99kW vertical axis turbines in operation and Sroka at the same booth has a portfolio from 600W to 100kW from several manufacturers. Finally, Lely (booth 5B42), known as a manufacturer of milking and feeding systems for cows, has the successful Aircon turbine in its programme to provide local electricity for its machines.

Frits Ogg, Renewable Energy Consultant

EWEA appoints Giles Dickson as new CEO

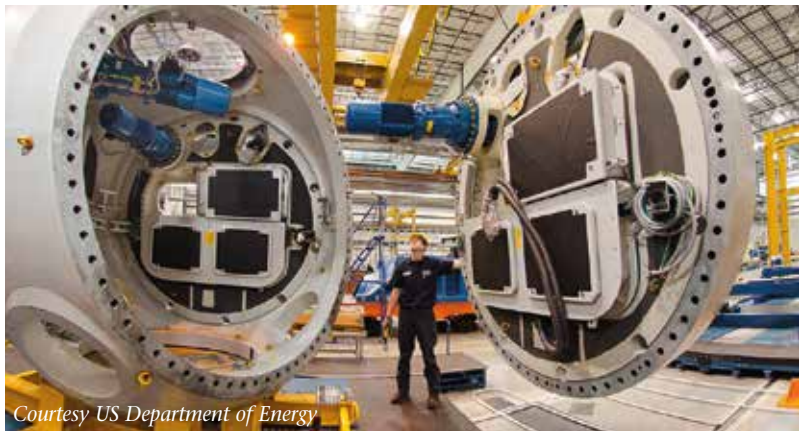
The European Wind Energy Association (EWEA) has appointed Giles Dickson as its new Chief Executive Officer. Mr Dickson was Vice President of Global Public Affairs at Alstom before joining EWEA. Prior to this, he was a civil servant in the UK government for over 15 years. Mr Dickson comes to EWEA with substantial experience and knowledge of European energy and climate policies, having led negotiations on the environment at the UK Permanent Representation in Brussels and having overseen Alstom's engagement on these issues with governments worldwide.

Giles Dickson

The future of technology – manufacturing

Manufacturing technology is often overlooked when it comes to wind, but it represents one of the highest impact sectors of innovation in the industry. With the evolution of blade manufacturing from filament-wound technology to SCRIMP and now the almost ubiquitous VARTM process we have seen tremendous improvement in structural stability for blades in the past few years.

Looking ahead for blade manufacturing technology, this trend shows no signs of slowing down as OEMs and sub-component suppliers seek to further improve quality as well as reduce cost and weight of blades.



Courtesy US Department of Energy

We are anticipating a shift towards metal–composite hybrid materials in the blade that take advantage of the strength of carbon, without the cost penalty, and only modest weight increase versus carbon use. Selective placement of metals and the bonding process with composites has long been developed and applied in the aviation/aerospace industry, but the adaptation to wind's massive structures will require additional innovation.

3D printing has yet to make a meaningful impact, but look for this to become more pervasive for sub-component manufacturing of spar caps, shear webs, root elements and other structural components in the blade.

In the meantime, manufacturing automation still continues to see development and we anticipate that tape laying, fibre placement and automated manufacturing of structural sub-components should continue to flourish.

Gears and bearings will also see significant improvements in the manufacturing process as new materials are explored. New technologies such as asymmetric gear tooth profiles for helical gears which are desired for low noise and better reliability are demanding the design of new manufacturing fixtures and machining processes that go well beyond computerised numerical control.

We also look for generators to benefit from new designs and new materials that will introduce manufacturing challenges as well. Production and installation of windings for both DFIG as well as PMG stators (or rotors) still have yet to see benefit of significant manufacturing automation. We anticipate some OEMs and generator suppliers will make significant investments in these automation approaches to reduce the uncertainty associated with the hand winding process.

Precision castings also have opportunity for innovation as the tempering process can have a profound impact on component reliability.

The cost for producing austempered components has been reduced, making the use for main shaft production more attractive.

Lastly, the debate also continues regarding field manufactured or assembled components and whether quality can be maintained in this scenario which seeks convenience. While factory assembly and shipping of sub-component structures may be preferred due to the controlled environment, the size of component assembly being contemplated does make the case for field assembly more compelling given the logistics costs of large, integrated components.

Realistically, the cost of a 'pop-up' factory environment for near-site manufacturing would only make sense given a certain amount of production volume because of the costs which would be incurred for setup and teardown after every project. While this approach appears convenient, the cost has not yet reached a level where pervasiveness would enable more widespread use.

Philip Totaro, Founder & CEO, Totaro & Associates

HUSUM Daily 2015

During the four days Windtech International will publish the HUSUM Daily. The HUSUM Daily will be prepared and edited by a team from Windtech International in cooperation with staff from HUSUM Wind. Each day we will work on the issue to be published the following morning. If you have editorial material you want considered for publication please make sure that we have it before 1 pm each day.

Feel free to contact us at advertisinghusum@windtech-international.com for advertising

and editorialhusum@windtech-international.com for editorial contributions.

or by phone +31 6 51209053

Publishing Company
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Postal address
Siteur Publications
Dr C Hofstede de Grootkade 28
9718 KB Groningen
The Netherlands
info@windtech-international.com
www.windtech-international.com

News

E-RAD roller system

The E-RAD roller system is able to tighten large quantities of bolts. The roller system is available for E-RAD models of 8,000, 10,000 and 15,000NM and is specially designed for tightening bolted flange connections for the onshore and offshore wind tower industry. The flange roller runs on the tower flange and lifting and lowering to the next bolt is spring assisted. The system itself aligns the wrench so it is always positioned straight on the bolt. In resting position the wrench slides down over the bolt, locking the roller and E-RAD safely on the flange. The E-RAD roller itself only weighs 11kg and the whole system can be assembled up tower in less than 5 minutes. The roller wheels can be adjusted for different flange sizes, but if needed a custom roller can be designed. The roller system is provided with lifting points for hoisting it up tower.

Booth 3A01

The E-RAD roller system

Morewind presents new load simulation toolbox

mwLoADS, the new load simulation toolbox from morewind, enables an efficient wind turbine engineering process. The company's product is based on the open source software FAST from the National Renewable Energy Laboratory (NREL). Its main features are pre- and post-processing, a time-series viewer and the ability to run load cases in parallel within a network. The toolbox is suitable for wind turbine OEMs and component suppliers such as control system manufacturers.

Booth 3A28

DNV GL presents its Smarter Operations service portfolio

DNV GL's Smarter Operations service portfolio combines analytical capabilities with practical on-site assessments, from short-term forecasting to optimised inspections and monitoring services. The portfolio has been developed to support wind and solar energy project developers, owners and operators to boost the revenue of their assets. DNV GL offers a wide range of integrated services to all stakeholders seeking support and risk mitigation in addressing the challenges and opportunities in the operational phase of a project's life cycle.

Booth 1E28

iSpin achieves a 7.7 per cent increase in energy yield at the Sustrum/ Renkenberge wind farm

ROMO Wind has installed its patented wind measurement technology iSpin in 16 Nordtank NTK 1500/64/80 turbines in the Sustrum/ Renkenberge wind farm (Germany). The measurements showed that the yaw misalignments in the turbines were between 11.8 and 21.7 degrees. After this had been rectified, yield increased by 7.7 per cent on average, compared with the measurements taken during spring 2013 and autumn 2014. The ROMO Wind iSpin system uses ultrasonic technology to measure wind where it first hits the wind turbine – directly at the spinner. By taking measurements here, operators gather accurate information on the wind conditions in front of the rotor. This enables them to check whether their turbines are aligned for the best possible yield. At the same time, the data allows for optimised wind farm management and load reduction, which prolongs the total life of the turbines.

Booth 3B08

Availon records steady growth in Japan

Availon has received an increasing number of orders for major wind turbine generator components from Japan. The company addresses the needs of the Japanese market in collaboration with local company EOS Engineering & Service Co., Ltd, with whom it has established a partnership over the last five years. The cooperation started out with Availon's delivery of grid coupling contactors for wind turbine generators of the type GE 1.5; nowadays it also includes delivering major components like gearboxes, generators or main bearings. EOS Engineering & Service takes care of about 250 wind turbines, including 180 of the type GE 1.5.

Booth 4B09

Availon component lift in action

SoDAR AQ510 Wind Finder passes the first IEC classification test

AQ510 Wind Finder has achieved the IEC accuracy class 2–4 at 80 and 100 metres height. The IEC 61400-12-1 is currently under revision with the aim to include guidance for using remote sensing devices in power performance assessments. The classification includes testing of the sensitivity of the accuracy of the device to variations in environmental variables. Additionally, AQ System verifies each AQ510 Wind Finder against its 103 metre IEC-compliant met mast in Fimmerstad, Sweden. The verification tests also indicate that the low production tolerance guarantees great unit-to-unit conformity.

Booth 1B01

Siemens creates a new sales channel for local onshore wind energy projects

In the future, Siemens will work more closely with partners on wind parks with three or fewer turbines. These partnerships will ensure that the operators of smaller onshore wind parks have access to local contacts. This new concept will allow Siemens to better meet the demands of many project owners in the German onshore wind market. The new sales channel for these small wind parks builds on the successful Siemens D3 product platform, and incorporates standard components and proven tower configurations. Sales partners will offer logistics and installation independently. Customers can

order project planning and permit authorisations as well as construction of foundations from companies like Nadeva Wind GmbH. This new distribution channel will initially be limited to the German market. Turbines will be Siemens branded and will comply with Siemens' high quality standards; therefore, every marketing agreement will be based on a detailed assessment.
Booth 2A10

Adding DuraGear W100 to extend the life of all moving parts

The abrasion and the wear on gearboxes and bearings is a key issue when it comes to service life and sustainable functionality. Here in particular, the spotlight falls on the aspects of energy consumption, power and operational safety. Adding DuraGear W100, which was specially developed for the wind industry, can extend the life of all moving parts right through to the scheduled repowering, without having to make an additional investment in a gearbox. Many well-known service firms have contractually assured the products and services of REWITEC.
Booth 3C11

Adwen reaches 630MW in operations

With the official start of operations of Trianel Wind farm Borkum and Global Tech I, 120 Adwen turbines are now ready to produce clean electricity for about 645,000 households. Adwen will also provide maintenance operations and maintenance services for both wind farms, located respectively 40 and 100 kilometres off the German coast. Adwen has the objective of garnering a market share of close to 20 per cent by 2020. For the first semester 2015, Adwen almost reached 20 per cent of the grid-connected capacity in Europe.
Booth 3B10

Adwen turbines

Meet the Expert session: Wind Revenue Forecast model

DVN GL is holding a 'Meet the Expert' session where you can learn more about its new forecasting model for an optimised location analysis. The Wind Revenue Forecast model combines the expertise of DNV GL's energy yield assessments and its model to forecast electricity prices. 16 September, 12.30.
Booth 1E28

Moventas introduces a new 3MW gearbox class

The Exceed is a new 3MW and more product platform from Moventas. The Exceed provides 20 per cent more torque density with 10 per cent less size. Compared to a conventional Moventas 3MW gearbox, the Exceed is nearly 4.5 tonnes lighter, under 20 tonnes. The Exceed's overall noise levels are quieter on both partial and nominal powers. Its maximum vibration level is half the level of a conventional 3MW gearbox. Supervised by a classification body, Moventas finished the successful prototype verification process two weeks ago. Serial deliveries of the Exceed will begin in the first quarter of 2016 for two OEM customers from Moventas' wind gearbox factory in Finland.
Booth 4D07

Moventas 3MW gearbox

Senvion presents onshore wind turbine

Senvion introduced a new onshore wind turbine for low-wind locations. The Senvion 3.4M140 is equipped with a sound-optimised blade profile and a new pitch control system to reduce turbine load. The turbine will be in hub heights of 110 and 130 metres. The service life is extended to 25 years. The mass-produced optimised blade profile with integrated serrations also reduces the sound power level of wind turbines. Senvion will install the prototype in 2017. The turbine is equipped with the Next Electrical System (NES). The gearbox-based concept features an asynchronous generator and a fully rated converter.
Booth 1C07