

Wind farm operation and maintenance:  
Take charge:  
Reduce, improve and develop

SKF Wind Farm Management Conference,  
9–10 May 2017, Vienna, Austria





# Welcome!

Dear colleagues in the wind industry,

2017 is shaping up to be a year of transition. Changes in the political climate affect our industry, as do changes in investor policies and a greater degree of engagement with traditional energy players. Installed capacity continues to grow and so too do turbine technologies, with new turbines passing milestone ratings.

Time to take charge, to ensure that the Wind O&M community actively pursues improvements towards ever more challenging demands of reliability and to reduce cost of energy. And to seek further developments, in the hardware as well as in the digital area, which can help operate and maintain wind farms as a viable and sustainable source in the global energy mix.

This year's SKF Wind Farm Management Conference has been guided by members of the program committee, representing companies from ABB, IG Windkraft, Vestas, ZF and SKF, who have considered these topics and selected speakers with expertise to share from their respective fields.

Following the pattern of recent conferences we include several break-out sessions for smaller groups to explore specific subjects or aspects of the broad main theme. We believe this will provide you with valuable opportunities to exchange knowledge and experience.

We now invite you to gain from the latest insights of leading industry players, make contacts and participate in active discussions to help you develop through 2017 and beyond.

On behalf of the program committee

Raf Kerkhofs  
Business Development Manager Wind O&M

Florian Maringer  
IG Windkraft



Michael Richter  
Vestas



Teijo Karna  
ABB



Wim Deckx  
ZF



Raf Kerkhofs  
SKF

Philipp Schmid  
SKF

Heike Wellmann  
SKF

Media partner:



# Conference programme

## Tuesday, 9 May 2017

- 07:30–09:00 Registration at hospitality desk and coffee
- 09:00–09:05 Opening  
Raf Kerkhofs  
Business development manager wind O&M – SKF
- 09:05–09:20 Welcome note  
Theresia Vogel  
CEO – Climate and Energy Fund, Austria
- 09:20–09:50 Key note speech  
Pernille Wichmann Christensen  
Sr. Director, Head of Key Account Management and Marketing,  
Global Service – Vestas
- Drivers for reduction of LCOE**
- 09:50–10:05 Reduction of LCOE through lifetime extensions  
Marc Holtz  
Asset Management Manager – RES
- 10:05–10:20 Success factors for efficient operation of a wide spread international wind park portfolio  
Frank Dumeier  
CEO – WEB Windenergie AG
- 10:20–10:35 Long term service from an investor perspective  
Peter Zachrisson  
CEO – Stena Renewable AB
- 10:35–10:55 **Panel debate – Drivers for reduction of LCOE**  
Darius Snieckus  
Editor-in-Chief – Recharge
- 11:00–11:05 Practical info break-out sessions
- 11:05–11:35 Coffee break and networking
- 11:35–12:35 Break-out sessions\***
- 12:35–13:35 Lunch
- Improve operational excellence**
- 13:40–14:00 Intelligent gearbox performance management  
Raj Boya  
Head of Global Service Sales Business  
Unit Wind Power Technology – ZF Wind Power
- 14:00–14:20 Reducing cost with crane less solutions  
Mikael Thorndal Madsen  
Project Manager – Liftra
- 14:20–14:40 Do not let offshore wind become a waste of time  
Thorsten Jalk  
CEO – Ziton A/S
- 14:45–14:50 Practical info break-out sessions
- 14:50–15:20 Coffee break and networking
- 15:20–16:20 Break-out sessions\***
- 16:20–16:40 Reducing operating cost through innovative solutions  
Curt Eliasson  
Vice President Remanufacturing & Specialty Services –  
Renew Energy Maintenance
- 16:40–17:00 Mainshaft solutions  
Jens Bode  
Head of Energy Industry – SKF
- 17:00–17:10 Closing of the day  
Raf Kerkhofs  
Business development manager wind O&M – SKF
- 19:00–19:15 Meet at hotel lobby
- 19:30–23:00 Evening event and dinner at "MS Admiral Tegetthoff"  
Host: Hannes Leopoldseger  
Business Unit Manager Industrial Services Centre – SKF

## Wednesday, 10 May 2017

- 08:30–09:00 Coffee and networking
- 09:00–09:05 Intro and Recap day 1  
Raf Kerkhofs  
Business development manager wind O&M – SKF
- 09:05–09:25 Further consolidation and competitive dynamics in a growing service sector  
Michael Gulbrandtsen  
Managing Consultant – Make
- Development of service solutions**
- 09:30–09:45 Main bearing exchange solutions for rough conditions  
Wolfgang Losert  
General Manager – Eolotec
- 09:45–10:00 Offshore Wind O&M Challenges – the BOOM LOCK system  
Patrick De Block  
Business Development Manager –  
GeoSea Maintenance NV (DEME Group)
- 10:05–10:10 Practical info break-out sessions
- 10:10–10:40 Coffee break and networking
- 10:40–11:40 Break-out sessions\***
- Development of services: Data intelligence**
- 11:45–12:05 What does big data mean for SKF?  
Rigoberto Moreno  
Global Manager Service and Solutions – SKF
- 12:05–12:25 Connected wind asset life cycle management  
Steven Hagner  
Industry Solution Executive – ABB
- 12:25–12:45 Highly efficient wind turbine performance analysis and optimisation  
Christopher Gray  
Managing Partner – Uptime Engineering GmbH
- 12:50–13:00 Closing WFMC 2017
- 13:00–14:00 Lunch

### \* Break-out sessions

- Future of service: Role of OEM, ISP, Component manufacturer
- End of warranty/ end of contract – Best practices
- Uptower versus downtower repairs
- Health & safety and reliability versus pricing pressure
- The impact of MW Turbines (3+) on service
- Electrical balance of plant
- Repair/refurbish versus replacement of core components
- How to prepare for an aging asset portfolio
- Run-to-failure versus pro-active maintenance

# Conference presentations

Tuesday, 9 May 2017

**Topic:** Opening by conference moderator  
**Moderator:** Raf Kerkhofs  
Business development manager  
wind O&M – SKF

**Topic:** Welcome note  
**Presenter:** Theresia Vogel  
CEO – Climate and Energy Funds Austria

**Topic:** Key note speech  
**Presenter:** Pernille Wichmann Christensen  
Sr. Director, Head of Key Account Management and Marketing, Global Service – Vestas

The changes in the European wind industry impact how new projects are being developed and also how existing plants are being operated. We experience an increased complexity as the European market is dominated by aging fleets and lower electricity prices. In addition, many operators manage fleets dealing with several OEMs and are facing challenges in utilizing their scale. Furthermore, we see auctions becoming the new normal. Vestas is taking an active and leading role in shaping the O&M of tomorrow, so the downward trend for wind's LCoE can continue across the continent. Vestas is utilizing strong partnerships and innovative aftermarket solutions to reduce the cost of energy and optimize production for our customers. That is the only way we, together, can meet the challenges we are facing.

## Drivers for reduction of LCOE

**Topic:** Reduction of LCOE through lifetime extensions  
**Presenter:** Marc Holtz  
Asset Management Manager – RES Group

RES is operating in the south of France at a very challenging wind farm with high OPEX. Due to an evolution of the regulation and the very low electricity prices, we faced the choice of stopping the operation or reducing the cost of energy and extending the life time. RES will explain the methodology they applied on this extremely difficult case study to transform a convicted asset to a cost effective asset.

**Topic:** Success factors for efficient operation of a wide spread international wind park portfolio  
**Presenter:** Frank Dumeier  
CEO – WEB Windenergie AG

The decentralized energy transition from fossil to renewable energy provides a bright future and potential for further growth to the wind industry. Hence, the wind farm portfolio of international operators will become more and more spread. Cost efficiency, high quality, and safe operation altogether will be the future challenges for operating wind farms to compete with the depreciated old fossil power plants. With its 22 years of experience, W.E.B has developed and implemented an operation model for a wide spread, international portfolio of windfarms setting benchmark standards for the business. The need for an efficient international operation is covered in the 5-layer W.E.B operation model linking decentralized tasks at the wind parks with a strong centralized management.

**Topic:** Long term service from an investor perspective  
**Presenter:** Peter Zachrisson  
CEO – Stena Renewable AB

Stena made their first investment in wind in 2005 without any prior knowledge about the industry. The presentation will focus on how can a company deal long term cost and organization in an early phase.

**Topic:** Panel debate – Drivers for reduction of LCOE  
**Moderator:** Darius Snieckus

## Improve operational excellence

**Topic:** Intelligent gearbox performance management  
**Presenter:** Raj Boya  
Head of Global Service Sales Business Unit  
Wind Power Technology – ZF Wind Power

Dynamic torque measurement has a high potential to optimize drive train performance and reliability by avoiding excessive stress on the components. The accumulated load data can also be used for a sophisticated evaluation of the remaining lifetime. Rotor imbalances can be detected and critical operation points actively prevented. The intelligent gearbox therefore comes equipped with state-of-the-art CMS sensors. All the measured information is enriched with the domain knowledge of ZF as a major global gearbox manufacturer and provided to the customers in a cloud environment. Apart from the basic concept the presentation will also provide insight into actual application data from turbines in the field to demonstrate the potential of the approach.

**Topic:** Reducing cost with crane less solutions  
**Presenter:** Mikael Thorndal Madsen  
Project Manager – Liftra

Cranes have always been a critical asset in the wind industry to perform various service activities at the main components. The availability of cranes was defining wind park location, turbines capacity and ground conditions needed for the installation, service and maintenance. Due to constraints of using a conventional crane at some of the wind parks, Liftra has been developing a self-hoisting crane solution for gearbox and generator exchange, delivered in a 40' container that can reach any place on the earth including remote countries or islands. During this presentation, we will show the "Elsterheide case": the 10 Vestas V90 were erected above ancient lignite mines in 2005. The condition of the ground became so poor that no traditional crane could access the turbines any longer.

**Topic:** Do not let offshore wind become a waste of time, for anyone  
**Presenter:** Thorsten Jalk  
CEO – Ziton A/S

Wind turbines on- or offshore are more or less the same. The difference lies in the access to the turbines and the costs connected to this factor. Weather is the biggest influence offshore and the vessel is an expensive essential asset. To reduce LCOE we need offshore efficiency and operational work flows. It is essential to keep the vessel working instead of waiting for spare parts or personnel once the weather conditions are perfect. This can be done if we lower the number of people involved in the offshore operations and let the best skilled people take care of the job.

**Topic:** Reducing operating cost through innovative solutions  
**Presenter:** Curt Eliasson  
Vice President Remanufacturing & Specialty Services – Renew Energy Maintenance

Operating costs associated with 'unscheduled' maintenance needs can weaken or, oftentimes, pose a significant threat to the financial viability of a project. Traditional repair methods include complete removal of a damaged component, typically the gearbox, using large cranes. Although crane costs (in the US) have come down due to increased competition over time, it is still a large piece of the overall repair cost. RENEW has developed numerous repair methods, tooling and procedures to reduce or eliminate the crane costs all together. Safety and Quality are paramount to the new processes and always our first consideration. Considerable effort goes into R&D, testing and certification of tooling and methods. RENEW has developed numerous methods to perform insitu repairs which has eliminated or reduced the size of crane needed to perform the repair. This presentation will introduce several of these proven methods.

**Topic:** Mainshaft solutions  
**Presenter:** Jens Bode  
Head of Energy Industry – SKF

The challenge to reduce cost of energy brings into contrast the original equipment costs and the longer-term Opex drivers. As today's service business matures, it's becoming clear that decisions made for component selection can strongly influence maintenance needs. For example; the impact of the main shaft reliability is disproportionate in terms of Opex. A shift in focus, from individual component costs towards a system approach, will drive greater reliability. The performance of main shaft bearings will benefit from insights into design interfaces and complementary functions between associated parts. This approach also provides opportunities for upgrades and retrofitting to boost energy production.

**Topic:** Closing of the day  
**Moderator:** Raf Kerkhofs  
Business development manager  
wind O&M – SKF

## Wednesday, 10 May 2017

**Topic:** Intro and recap day 1  
**Moderator:** Raf Kerkhofs  
Business development manager  
wind O&M – SKF

**Topic:** Further consolidation and competitive dynamics in a growing service sector  
**Presenter:** Michael Guldbbrandtsen  
Managing Consultant – MAKE

The global wind turbine fleet has surpassed 400 GW, with more than 55% of the installations occurring within the past 5 years. This sizable installed base will require 20-30 years of maintenance, providing significant opportunities for companies engaged in the aftermarket. Global energy policies continue to tilt in favor of renewables, leading to the expectation that a further 600 GW will be installed over the next decade. These highly sophisticated and finely controlled machines present a lasting and dynamic market for maintenance and value adding services for the foreseeable future. Turbine original equipment manufacturers and asset owners have come to view the aftermarket as a critical element of their competitive positioning, accelerating innovation initiatives to realize cost savings and operational improvements. Further consolidation and competitive dynamics are a near certainty in the services sector as the global fleet continues to grow and operational excellence increases in focus.

### Development of service solutions

**Topic:** Main bearing exchange solutions for rough conditions  
**Presenter:** Wolfgang Losert  
General Manager – Eolotec

In the past years, it turned out that preloaded bearing systems have significant benefits compared to others. All these benefits are in vain if the preload is not set exactly and it becomes even worse when the environmental conditions are extreme demanding. For this kind of applications, Eolotec has developed the MBU concept. The Main Bearing Unit contains of an adjusted tapered roller bearing set together with a housing, shaft and sealing system already assembled and proved at the production site. As a worldwide novelty, Eolotec entered the aftermarket with such a MBU to replace an existing, failed rotor bearing with a different reliable bearing concept. The prototype is now turning under extreme conditions since September 2016 on the top of a mountain range in central Europe.

**Topic:** Offshore Wind O&M challenges – the BOOM LOCK system  
**Presenter:** Patrick De Block  
Business Development Manager – GeoSea Maintenance NV (DEME Group)

The Offshore Wind industry is continuously being challenged to further reduce costs. Wind turbine hub heights and rotor diameters are increasing, to capture more wind. Fast response times, the availability of suitable vessels and efficient major component replacements will be key. With the development of more efficient vessels, capable of transiting and jacking-up in harsher conditions – weather downtime has been pushed back to the lifting operation. In order to lift turbine components in higher wind limits, an intelligent guidance system has been developed, that allows an offshore crane to install wind turbine components at wind speeds that were previously unachievable.

## Development of services: Data intelligence

**Topic:** [What does big data mean to SKF?](#)  
**Presenter:** [Rigoberto Moreno](#)  
[Global Director Industrial Digitalization](#)  
[& Solutions – SKF](#)

SKF digitalization journey started many years ago and it started with the end in mind: to deliver a World of Reliable Rotation. Gathering machine data is as you well know nothing new. We started decades ago and the number of bearing points monitored by SKF from its Remote Diagnostic Centers around the world is already in the millions. The Wind Industry has been a big part of that journey full of learnings and experiences that allow us to see big data from a holistic perspective that amalgamates application knowledge, machine design, the operation and maintenance of the asset, as well as the supply chain that provides components to keep those assets running without interruption. So big data for SKF is more of an evolution than a beginning. Now technology allows us to integrate into flexible cloud platforms, collect and share data from a wider number of sources, enhance analytics and unlock important machine performance insights that ultimately enable us to make better and more overarching decisions. This presentation is intended to share how we are navigating into that new stage of evolution and how we use that to maximize rotating equipment performance.

**Topic:** [Connected wind asset life cycle management](#)  
**Presenter:** [Steven Hagner](#)  
[Industry Solution Executive – ABB](#)

As the wind power industry continues to mature, operators and ISP's are choosing to take more direct responsibility for managing their assets. This introduces new challenges for these organizations such as defining their Asset Management Strategy (as recommended by the ISO 55001 Asset Management standard), understanding full lifecycle costing of assets, leveraging the flow of data to guide predictive maintenance, creating an optimized mobile work force and making informed repower and/or replacement decisions. Through our work with customers in other asset-intensive industries, we have seen that the most benefits can be gained by looking at these issues as part of a larger Connect Asset Lifecycle Management approach. This presentation will discuss what this means for the wind industry and where benefits can be gained.

**Topic:** [Highly efficient wind turbine performance analysis and optimisation](#)  
**Moderator:** [Christopher Gray](#)  
[Managing partner – Uptime Engineering GmbH](#)

The wind industry has successfully connected (almost) all wind turbines to the internet, collected huge quantities of data and is heading for full digital transformation. This has allowed analysts to shed more light on the relative performance of large fleets and has helped to achieve significant reductions in the LCOE. Today a shift to the next level of insight is possible, with informed data analysis contributing to extending turbine lifetime and further reducing LCOE. But what is the best way to find the needle in the haystack? A methodology is presented for complete automation of power curve analysis using physics-based modelling techniques and root cause diagnosis using a model based reasoning engine. Furthermore, a workflow is described for efficient management of follow-up activities, supported by digitalised information management.

**Topic:** [Closing WPMC 2017 / Information 2018](#)  
**Moderator:** [Raf Kerkhofs](#)  
[Business development manager](#)  
[wind O&M – SKF](#)

# SKF spherical roller bearings are hard at work in more than 100 000 turbines



## New SKF spherical roller bearings for wind turbine main shafts are even more robust.

Designed specifically for wind turbine main shaft applications, new heavy duty SKF Explorer bearings can significantly improve turbine reliability and bearing life.

Combining our knowledge of bearings and the needs of the wind industry, and developed using advanced calculation simulations, these new bearings can reduce levelized cost of energy (LCoE) and help close the gap between traditional and renewable energy.

### Main benefits:

- Improved performance under typical wind operating conditions
- Increased robustness
- Reduced contact pressures
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- Significant weight reduction
- Improved lubrication

Learn more at [skf.com/SRBwind](https://skf.com/SRBwind).



*New SKF spherical roller bearings for wind turbine main shafts*



# Conference partners



**Presenter**

**Jens Bode**  
**SKF**

Jens Bode holding a degree in Mechanical Engineering and a Master in Business Marketing, joined SKF in 1995 and worked for the first 15 years in various positions for the steel industry. Together with the team he developed global spare part management programme and services for SKF in this industry. In 2010 Jens joined the wind team at SKF to start up the Wind O&M business. Jens took different management positions in the area of energy for SKF, today he is heading Energy Industry and the Global Wind Application Engineering Competence Centre.



**Presenter**

**Raj Boya**  
**ZF Wind Power**

Raj Boya is Head of Global Service Sales at ZF Wind Power since Jan 2017. He has over 7 years of experience working in the wind industry primarily in Key Account Management and Global OEM Sales leadership roles within Bosch Rexroth and ZF. Prior to that during the initial 6 years of his professional career he held several assignments in US, Europe, Asia and South America focused on multiple functional roles in lean operations, project management, strategic planning and business development. Raj holds an International M.B.A. degree from The University of Chicago Booth School of Business, M.S. degree in engineering from Northwestern University and B.Tech in engineering from IIT Roorkee.



**Presenter**

**Patrick De Block**  
**GeoSeaMaintenance (DEME Group)**

Patrick, as Business Development Manager, is responsible for the commercial development of GeoSea Maintenance and the acquisition of new clients. He started with DEME in February 2016. Prior to this he has worked in a commercial role for 8 years as a Key Account Manager for a leading wind turbine gearbox manufacturer. His roots however were in service when he started his career in a high-tech service environment establishing and managing a team of service specialists.



**Member of the program committee**

**Wim Deckx**  
**ZF Services**

Wim Deckx holds a Mechanical Engineering Degree and Master of Business Administration from the University of Antwerp. In 2006, Wim has joined Hansen Transmissions (since 2011 part of the ZF Friedrichshafen AG) and has held several positions within ZF Wind Power and ZF Aftermarket and is since January 2017 Head of Rail, Wind and Special Driveline Service at ZF Aftermarket.



**Organizer break-out sessions**

**Fritz Ulrich Dettmer**  
SKF

Fritz Ulrich Dettmer, holding a Master of Business Engineering (MBE), joined SKF in 2010 and for the last 4 years he worked in business development for renewable energy and had various responsibilities including offer management, aftermarket and wind generators. He is based in Schweinfurt. Previously he has been working in the automotive industry at ZF and Daimler.



**Presenter**

**Frank Dumeier**  
WEB Windenergie AG

Frank Dumeier, CEO of W.E.B, was born 1962 in Kassel (Germany). He started his career with a tool-maker apprenticeship. He went back to university, received two diploma degrees and a PhD in engineering. For more than 20 years, he held several senior management positions at an international automotive company in Europe, America, and Asia. In 2004, he got involved in the wind community and owned his first wind turbine a few years afterwards. He joined WEB Windenergie AG as COO in 2010 contributing his extensive experience in operational management. In 2016, he was appointed CEO of W.E.B. His current responsibilities comprise operations, project development, procurement, engineering, and innovation management.



**Presenter**

**Curt Eliason**  
Renew Energy Maintenance

Curt Eliason started in the wind industry working for Zond Energy Systems in the spring of 1998. Following the completion of commissioning of the new wind farm, there were numerous retrofits, component upgrades, component failure studies and other turbine reliability exercises that Curt actively participated in. He also developed tooling and written work instructions accordingly. Curt held the positions of Safety Coordinator, Lead Technician, Technical Trainer and the last two years he served as Site Supervisor, where he participated in many GE training seminars as well as Six Sigma training and certification. Curt left GE Wind Energy in February 2004, to establish a gearbox repair service for Energy Maintenance Services (EMS). While with EMS, Curt served as the Director of Remanufacturing, overseeing repair facility operations as well as specialized field repair and inspection services. Curt grew up farming and ranching in South Dakota. Prior to starting in the wind industry, he attended SDSU to pursue a degree in Mechanical Engineering.



**Presenter**

**Christopher Gray**  
Uptime Engineering GmbH

During his 20-year engineering career Christopher Gray has worked in design, analysis, development and management roles and with a variety of technologies. He is one of the co-founders of Uptime Engineering where he is responsible for all wind energy related activities, with a focus on software and methodology for O&M optimization. Christopher has provided consulting for several medium to large scale wind power operators in Europe, specifically relating to performance improvement, condition monitoring and condition based maintenance. He holds a Master degree in Renewable Energy Systems Technology.



**Presenter**

**Michael Guldbandsen**  
MAKE

Michael leads MAKE's wind research in Europe, Middle East and Africa. He is responsible for global offshore wind market trends and strategic impacts to support MAKE's global research and advisory engagements. Prior to joining MAKE, Michael worked in DONG Energy's wind power department where he worked with many aspects of DONG Energy's offshore wind projects – from improving wind farm performance through closer cooperation with suppliers to implementing must-win-battles as part of DONG Energy's reduction of COE. Before DONG Energy, Michael worked with Energinet.dk, where he focused solutions to overcome challenges and barriers in the development of European energy markets. Michael works out of our office in Aarhus, Denmark.



**Presenter**

**Steven Hagner**  
ABB

For the last 15 years Steven Hagner has focused on helping large organizations in Europe, Middle East and Africa understand how they can benefit from advances in IT. He advises utilities regarding optimizing asset life cycle management, leveraging advances in the Internet of Things, Big Data, and Predictive Analytics.



**Presenter**

**Marc Holtz**  
RES Group

Marc Holtz has a master in industrial engineering with a strong specialization in maintenance management. He joined RES 9 years ago as an operation and maintenance engineer, he then developed the French RES team and was in charge of the optimization of the plants. Today he is managing the French Asset Management team. They are in charge of more than 500 MW of wind and solar assets in France that have been entrusted to RES (+2GW asset in management worldwide) by their customers.



**Presenter:**  
**Thorsten Jalk**  
 Ziton A/S

Thorsten Jalk has 15 years of experience from the offshore wind industry and has held numerous high-level positions in the business prior to becoming CEO of ZITON A/S. He has a background as

Officer in the Danish Army, holds a Master in Transport and Maritime Management (MTMM) from the University of Southern Denmark and has additionally completed the Executive Management Programme at INSEAD. Thorsten Jalk has extended knowledge in strategic international business development and Offshore Operations Ship Management. He is focused on financial and temporal resources and works dedicated to optimize and improve the industry on both a practical and a financial level.



**Presenter**  
**Wolfgang Losert**  
 Eolotec

Wolfgang Losert was born 1972 in southern Bavaria. He started his wind power and bearing career as a specialist for bearing technology at Schaeffler in Herzogenaurach. The first contact

with wind power technology was in 2007. Fascinated from the great opportunities of this branch he left Schaeffler 2008 and worked for different bearing suppliers and a wind turbine developer as technical director. Beginning of 2012 he took the opportunity to buy out his engineering team from his employer and founded together with his business partner Mathias Pick the Eolotec GmbH. In the past 5 years, Eolotec has become a reliable supplier and development partner for wind turbine OEMs as well as for WEC operators.



**Member of the program committee**  
**Teijo Karna**  
 ABB

Teijo is an Industry Segment Manager for Wind in ABB and is responsible for generators, converters and motors. He has been working in the wind industry since 2001 in mainly sales and management roles.

He started in the industry when the turbine size just had shifted from kW to MW class so he has had the opportunity to closely follow the industrialization and rapid growth. Teijo is also a member of the ABB Wind business core team which is coordinating all wind related business activities globally within the ABB Group.



**Member of the program committee**  
**Florian Maringer**  
 Austrian Wind Energy Association

Florian Maringer is responsible for energy economics and all technology related topics at the Austrian Wind Energy Association. This includes the whole supply chain of the wind industry as well as operational issues and the long-term development of the wind industry in Austria and Europe.

He works closely with industry associations, grid operators, energy related bodies, various companies within the wind energy sector as well as media and public affairs.



**Member of the program committee and conference moderator**  
**Raf Kerkhofs**  
 SKF

Raf Kerkhofs, holding a master in Information Management, is working for 12 years at SKF having different international positions. Before joining the

wind industry, he has been working in aftermarket business for various industries and Key Account Management. In the last four years he is in charge of Business Development for Wind O&M as well as in charge of oil & gas and power generation. Raf is based in Brussels, Belgium.



**Presenter**  
**Rigoberto Moreno**  
 SKF

Rigoberto Moreno is a Mechanical Engineer, MBA with 23 years of professional experience. In 21 years with SKF, Rigoberto has been a transformational driving force breaking into non-traditional

business models and engaging SKF with important firms globally in non-transactional performance based manners. Rigoberto has also managed SKF Machine Health technology product centers globally where the digital technologies that enable SKF to enter into the world of IoT and Big Data are developed and engineered. Today Rigoberto is globally responsible for Industrial Digitalization & Solutions, articulating SKF capabilities in all aspects of Rotating Equipment Performance.



**Dinner host**  
**Hannes Leopoldseder**  
 SKF

Hannes Leopoldseder is heading the Industrial Services Center in Steyr. Before he has been in charge of the Global Sales Wind Operations and Maintenance within SKF. Throughout his career

within SKF, which started in 2001, he has held a number of leading positions in business development including two international assignments in Germany and Sweden.



**Member of the program committee**  
**Michael Richter**  
 Vestas

After business studies in Germany and U.S. Michael Richter stayed true to service throughout his career. He joined industry with Nordex in the role of Service Sales Manager for Europe & North America. He

moved on to the position of Manager Global Service for Availon GmbH, a leading international ISP, where he stayed for four years until Availon was acquired by Vestas in early 2016. Since that time Michael Richter has been leading the Multibrand Sales Development of Vestas.



**Member of the program committee**  
**Philipp Schmid**  
 SKF

Philipp Schmid followed business studies focusing on marketing and industrial management and researched on strategic marketing in China during his PhD studies. Before joining SKF he worked as Client Service Executive and Junior Research Consultant for GfK in China and Germany. As from 2008 he joined SKF and worked as project manager, market analyst and marketing manager in the Renewable and Energy industries. Besides working for SKF he is also teaching industrial marketing at Baden-Wuerttemberg Cooperative State University.



**Member of the program committee and conference organizer**  
**Heike Wellmann**  
 SKF

Heike Wellmann holding a Master in Economics, joined SKF in 1986 and worked in various international positions in logistics, marketing and business development. She also worked in Italy for SKF. Since 2012 she is working as communication manager for the Wind Industry.



**Moderator panel debate**  
**Darius Snieckus**  
 Recharge

Darius Snieckus is Editor-in-Chief of Recharge, the international renewable energy industry news and intelligence platform. A journalist with over 20 years' experience covering the global energy sector, Snieckus wrote for high-profile oil and gas titles including Offshore Engineer, the Oil & Gas Journal, and the Petroleum Economist, before joining Recharge for its launch in 2009. He has chaired panels and presented at major industry conferences run by WindEurope, the American Wind Energy Association, RenewableUK, the European Renewable Energy Council, Scottish Renewables and Intpow. Snieckus also hosts the Recharge Thought Leaders, a group of wind and solar power industry influencers which convenes regularly for Chatham House rules roundtables, and annually for its Thought Leaders Summit at Holmenkollen, Oslo.



**Keynote speaker**  
**Pernille Wichmann Christensen**  
 Vestas

Pernille Wichmann Christensen is Senior Director and Global Head of Key Account Management & Marketing, Global Service. She is currently based in Copenhagen. Pernille has been in the wind industry since she joined the Danish Ministry of Foreign Affairs in New York in 2006 as executive advisor for American renewable energy companies. Prior to joining Vestas, Pernille held the position as Global Business Development Manager for Brüel & Kjær Vibro, with responsibility for KAM and for driving market expansion and revenue growth in the Americas. Pernille holds a master degree in Public Administration and Management from Roskilde University, DK.



**Presenter**  
**Mikael Thorndal Madsen**  
 Liftra Aps

Mikael Thorndal Madsen has been working in the transport and wind industry since graduation as MSc. in Engineering from Aalborg University in 2004. In Liftra Mikael holds a position as Product Group Manager for the Liftra Self Hoisting Crane. He is in charge of crane production and crane related equipment intended for use with the Liftra Self hoisting Crane, development of future solutions and customer specific requirements. In addition Mikael is responsible for sales support both internal and external.



**Presenter:**  
**Peter Zachrisson**  
 Stena

Peter has worked within the Stena Sphere since 2002 and at Stena Renewable since the start of the company in 2005. Peter is originally from Gothenburg Sweden and has a M.Sc. degree from the Royal Institute of Technology in Stockholm.



**Welcome note**  
**DI Theresia Vogel**  
 Climate and Energy Fund, Austria

Since 2010, Theresia Vogel works as managing director for Climate and Energy Funds. Before, she managed the department for structural programs at FFG where a team of 40 experts manages specific scholarships with a focus on the elimination of structural barriers for industrial research and technology development. The most popular program is the competence centre program COMET. Theresia Vogel completed a degree at the Technical University Vienna and graduated with honors. At that time, she worked as a research fellow for research and development at the university. Later in her career, Theresia Vogel invented the area of "sustainability and environmental management" at the FH Wiener Neustadt and developed research in this areas.

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