

# **INTELLIGENT OFFSHORE WIND O&M FORUM 2020**

*Smarter operation & maintenance, enhancing efficiency, reducing costs and optimizing performance with the latest technical solutions*

**1 - 2 April 2020**  
**Hamburg, Germany**



## INVITED SPEAKERS

### WHO SHOULD ATTEND?

#### C-Level, Heads, Directors, Managers of:

- Offshore Wind Farm Operators
- Asset Owners
- Turbine Manufacturers
- Data Scientists
- Research and Development
- Wind Resource Assessment
- Inspection
- Data Centers
- Technology and software providers
- Wind Turbine Reliability Analyst
- Failure and Diagnostic Analyst
- Asset health monitoring and performance optimization
- SCADA
- IoT
- Fleet Analyst

#### In The Chair

##### Özge Özüer

Risk Manager

**Global Tech I Offshore Wind GmbH**

##### Roel Berns

Operations Lead

**Gemini Windpark**

##### Jörg Asmussen

Offshore Development and Construction Asset and Innovation Management

**RWE Renewables**

**International GmbH**

##### Dr. Burcu Özdirik

Offshore Operations & Maintenance Services

**Siemens**

##### Johan Sandberg

Senior Manager Business Development, Offshore Wind

**Aker Solutions**

##### Sebastian Kaus

Advanced Data Engineer

**Vattenfall**

##### Peter Spengemann

Director Repowering

**wpd windmanager GmbH & Co. KG**

##### Stefan Diekmann

O&M Excellence Specialist

**TenneT**

##### Stuart Barnes

Regional Partnership Manager

**ORE Catapult**

##### Dr.-Ing. Falk Lüddecke

Managing Director

**JBO**

##### Rajnish Sharma

Technology Director – Wind & Low carbon solutions

**Equinor**

##### Fernando Sevilla Montoya

Senior Engineer, Renewables Projects – Offshore, N&B

**DNVGL**

##### Korbinian Ott

Project Manager

**TRACTEBEL DOC OFFSHORE GmbH**

##### Pete Andrews

Director

**EchoBolt**

##### Erik-Jan de Ridder

Senior Project Manager/Teamleader Renewable Energy Team

**MARIN**

##### Tanja Tränkle

Project Leader

**RISE**

##### Pierre-Guy Therond \*

Vice-President New Technologies

**EDF EN**

##### Werner VAN STEENWINKEL \*

Department Manager Monitoring & Maintenance, Offshore Wind

**Engie**

##### Sabine Weth

Country Manager Norway

**KONGSTEIN**

##### Dr.-Ing. Georg Enß

Business Development Wind Energy

**Wölfel Engineering GmbH + Co. KG**

\* Confirmation awaiting

**8:00 Registration**

**8:30 Introductory morning coffee**

**9:00 Welcome speech from IBCN and Opening remarks of the Chairman**

## CURRENT TRENDS AND LATEST DEVELOPMENTS

### **9: 10 Panel Discussion on “Current Trends and Opportunities”**

- How are technology innovations impacting the O&M market?
- Discuss optimization tools and best practices
- Which areas of O&M benefit most from digitalization?
- How does project finance influence the approach to maintenance strategies, contracts and budgets?
- Discuss best extension strategies for the future of assets
- How are cost reduction strategies impacting operations and maintenance across the globe?
- What strategies are owners and operators in the mature markets of Europe and Asia implementing to overcome the reduction of subsidies?
- An update and outlook on the emerging markets including offshore US, Latin America, Africa
- Across the globe how are cost reductions strategies impacting operations and maintenance?

### **10:00 Maximize your Yield and Operational Efficiency with the Latest Technologies**

- Learn about the most applicable tools to increase profitability
- Minimizing risk through innovative cybersecurity and AI innovation
- Discuss what are technologies in the pipeline, what is required to adopt them and what are the guarantees that operators want to see

**Fernando Sevilla Montoya** /Senior Engineer, Renewables Projects – Offshore, N&B /DNVGL

### **10:30 Getting the Most Out of your Offshore Taxi**

- Selecting the right vessel (Identification of demand)
- Engineering and operational preparation
- Project integration
- Reporting and optimisation with cloud based tool

**Korbinian Ott** / Project Manager /TRACTEBEL DOC OFFSHORE GmbH

### **11:00 Networking Coffee Break**

### **11:30 Improving End of Warranty Strategies**

- Learn how to improve O&M contractual language to better control your turbines
- Evaluate pros and cons for full-service
- Multi-contract and self-performance operations

### **12:00 Benchmarking Operation for Performance Optimization**

- Benchmarking offshore wind data of performance
- Sharing data amongst the organizations
- Allow wind farms to compare performance in an anonymous name

### **12:30 Applying Risk Based Approaches for O&M Optimization**

- Dropping down amount of maintenance by risk-based turbine assessment
- Failure mode and effects analysis of turbine
- Deploying reliability centred maintenance and risk maintenance regime as per owner's perspective

### **Acting on data insights, moving from routine to optimised maintenance for bolted flanges and structural components**

**Pete Andrews**/Director/**EchoBolt**

### **13:00 Networking lunch break**

### **14:00 Coffee after lunch**

## REDUCING COSTS AND INCREASING EFFICIENCY THROUGH DIGITALISATION

### **14:30 Advancing O&M Insights for Offshore Wind Plants with Digital Twins**

- Utilising advanced algorithms to monitor turbine integrity, performance and life
- What are recommendations for digital twin implementation for the different stakeholders?
- Discuss optimization the fleet and enhanced decision making that can enable profitable lifetime extension

### **15:00 O&M Developments - Offshore Grid Connections**

- Increase of autonomous phases for our offshore platforms
- Use of robots for support autonomous operation (ANYMAL robot project)
- Implementation of RCM (reliability centered maintenance) and Risk based maintenance
- Implementation of Digital Twin for offshore Grid connection systems

**Stefan Diekmann** /O&M Excellence Specialist/**TenneT**

### **15:30 Leveraging Machine Learning and AI beyond Offshore Wind**

- Fleet-based Artificial Intelligence for Fault Detection and Maintenance Optimization for Offshore Wind Farms
- Developing machine learning to correctly identify and categorize damages?
- SCADA data (mean, minimum, maximum, and standard deviations),
- Maintenance data (component replacement dates, lubrication events, etc.),
- Failure histories
- Firmware updates
- CMS data

### **16:00 Networking tea break**

### **16:30 Hurdles to Overcome When Moving to a Predictive O&M Strategy**

- Identifying the challenges facing inspection and repair for the upcoming generation of larger turbines
- Once we have achieved predictive maintenance, will we lose the ability to react to unique damages?
- How will warranties and servicing contracts for blade O&M change over the next decade? How will these changes impact the operations and maintenance strategy of owners and operators?

### **17:00 Condition Monitoring for Addressing O&M Challenges**

- Addressing the technical and commercial challenges
- Challenges in reducing life cycle costs and reduction in uncertainty
- Challenges in avoided catastrophic failures, optimized cost and SHM

### **17:30 Drone Inspection of Offshore Wind Turbines**

- Discuss the difficulties of a fully autonomous drones
- Define the data format to include image resolution, meta-data, geo-referencing, quality standard, etc.
- Identifying the challenges in imagery analysis's ability to automatically detect and classify the observed defects
- Correlate and compare the information with previous data, and produce predictive analysis to determine when a defect needs repair

### **Operation & Maintenance of Floating Wind**

**Sabine Weth**/Country Manager Norway/**KONGSTEIN**

### **18:00 Panel Discussion on "Digitalization in O&M"**

- How digitalisation can help reduce OPEX and deliver smarter operations
- How global operators and EPC contractors see pioneering digital technology working for them
- Digitalization for the supply chain.
- Optimisation asset maintenance through AI and machine learning
- Adapting the best strategy for digitalisation of your fleet
- IoT as enabler for effective asset management

### **18:30 Closing remarks of the Chairman for Day One**



**8:30 Networking morning coffee**

**9:00 Opening remarks of the Chairman**

## **LEVERAGING DATA ANALYTICS TO REINVIGORATE O&M**

### **9:10 Panel Discussion on “Maximize Operational Efficiency with the Accurate Data”**

- Utilize your operational data to enhance the use of analytics, proactively train staff and manage operating expense more efficiently
- Understand how to link performance skills and technical expertise with data intelligence to enable data-O&M cross-function capabilities and reduce operational risk
- Leverage the right data to gain accurate performance benchmarking for building an optimum O&M strategy
- Is data sharing the only way to creating an effective system of predictive maintenance?

### **10:00 Data models and ontologies in the wind industry. Data and documentation standards to support digitalisation**

- Why does standardization in a data driven industry matter?
- Useful standards in the wind industry and their application
- The power of knowledge management and ontologies
- Practical examples and business value

**Sebastian Kaus** / Advanced Data Engineer / **Vattenfall**

### **10:30 Remote Condition Monitoring of Offshore Wind Assets**

- Understanding the big data architecture for condition evaluation and monitoring
- A move from CMS to material science-based prognostic approach
- Insights on methodologies for asset component assessment

**11:00 Networking coffee break**

## **PREVENTING MAJOR COMPONENT FAILURE TO BOOST EFFICIENCY**

### **11:30 Decision Support for Improving Workability for Offshore Wind**

- Offshore maintenance JIP I and II
- Vessel response of CTV and SOV's implemented in a decision support tool which give advice if and how the operation can be performed.
- Do-IT radar, wave radar to determine the vessel response in advance

**Erik-Jan de Ridder** /Senior Project Manager-Teamleider Renewable Energy Team / **MARIN**

### **12:00 Cable O&M: Cost Critical Strategies**

- Comprehensive overview of offshore wind industry cable O&M experience
- Mapping the failure landscape

### **12:30 What Components are Causing Greater Problems?**

- Troubleshooting components in older plants vs newer plants
- Challenges of component change outs on remote site
- Discuss lesson learnt and recommendations
- Develop intelligent CMS strategies to mitigate risk; blade icing and cold weather challenges; gearbox and tower failure while saving component maintenance costs

**13:00 Networking lunch break**

**14:00 Coffee after lunch**

## **EFFECTIVE AND EFFICIENT LIFE EXTENSION OF OFFSHORE WIND ASSET**

### **14:30 “Lifetime Extension and Damage Detection Using Structural Health Monitoring”**

- Vibration and load monitoring of offshore wind turbines
- Lifetime assessment of each turbine in wind farm
- Damage detection for increased reliability and reduced inspection cost
- Data analytics of monitoring data with environmental and operating conditions

**Dr.-Ing. Georg Enß** /Business Development Wind Energy/**Wölfel Engineering GmbH + Co. KG**

### **15:00 Implementing Data Analytics for Life Extension of a Wind Turbine**

- Understanding of design and actual loads on large bearing for the risk of early stage failure
- Prediction of remaining lifetime
- Safeguarding functional performance, optimize maintenance planning and reduce costs.
- Utilization of historical wind data for remaining life estimation of wind farm

### **15:30 Maximizing the Output of Assets**

- Key Considerations and challenges when managing acquired Offshore wind assets
- Developers and the supply chain coming together to lower OPEX
- Discuss the new parameters to maximize output from your assets
- Integrating new technology to optimize assets

**16:00 Networking tea break**

## **OPTIMISING THE O&M MODEL: ENHANCE PERFORMANCE WITH THE COST SAVING**

### **16:30 Assessing Current Cost and O&M Models**

- Contemplating both the costs and the revenues throughout the life cycle of the assets and KPIs
- A flexible O&M evaluation model

### **17:00 Post-Warranty O&M: In-house, Third-party, or OEM?**

- Selecting the correct O&M aftercare approach
- End of warranty inspections
- Discuss how to develop proven, cost effective post warranty O&M strategies to optimize performance and dramatically reduce costs

### **17:30 Panel Discussion on “Foreseeing O&M Cost Projections”**

- O&M cost forecasting in all phases to make critical decision
- Evaluating risk mitigation strategies
- Validation of cost projections
- Key factors of O&M costs for owners and investors

### **18:15 Closing remarks of the Chairman for the event and thank you note from IBCN**

