



Press release

**fos4X-Ice detection recertified by DNV GL Group, formerly Germanischer Lloyd**

## **Legal certainty and minimum downtime**

**Munich, October 17, 2016 - The innovative fiber optic ice detection system from fos4X GmbH has been certified by DNV GL Group again. Wind turbine operators get legal certainty for using a suitable sensor system for safe stopping and automatic restart of the wind turbine, to prevent damage caused by ice shedding.**

To avoid ice shedding from the rotor blades and to ensure the safety of nearby people and equipment, the current law requires a shutdown of wind turbines when ice forms on the rotor blades.

The largest classification society for wind turbines worldwide - the DNV GL SE - certifies wind turbine-security technology. fos4Blade IceDetection was recertified for two years according to the rules of DNV GL guideline "Guideline for Certification of Condition Monitoring Systems for Wind Turbines".

The solution for ice detection on wind turbines developed by fos4X offers advantages over other systems:

- Passive, fiber optic sensors and therefore inherently safe from lightning
- Accurate detection of ice formation, wherever it arises
- Long lifetime through high cycle stability of the fibers
- Certified for automatic restart when ice free

### **Automatic restart certified**

Another feature of the ice detection system of fos4X is the ability of automatic restarting. The fos4X ice detection system detects a „free of ice“ condition reliably even at the stopped wind turbine and a restart of the system happens automatically. This occurs even in very low winds and without the need for visual inspections. The automatic restart has been certified by DNV GL. Therefore the statutory safety requirements are complied with and the highest possible plant operation efficiency can be achieved.

### **Robust and accurate**

The fos4X sensors are based on the technology of fiber Bragg gratings. These are optical interference filters written on optical fibers. The sensors detect changes in temperature and strain based on the changing reflected wavelength. Vibrations are detected in the sensor through the conversion into strains in the fibers. The sensors are in a protective housing and protected against step-on damage with a special coating. The ice detection system can either be installed in the wind turbine blade factory or retrofitted in the field.

### **Validation of the ice detection system in the field**

"The ice detection system has been installed in Germany, Austria, Canada and the Czech Republic. Thus, a large number of current wind turbine types were involved in the test and the reliability of the results could be ensured. Because of the worldwide distributed locations, a demonstrated basis of performance reliability of the ice detection results under different conditions is already available", explains Bernd Kuhnle, sales engineer at fos4X GmbH.

Operators can ask the manufacturer whether fos4X-ice detection systems are already installed or how they can be retrofitted.

### **Available images**

[http://www.fos4x.de/sites/default/files/18\\_Pressemitteilung%20Rezertifizierung-2.jpg](http://www.fos4x.de/sites/default/files/18_Pressemitteilung%20Rezertifizierung-2.jpg)



(Provided by: fos4X)



### **About fos4X GmbH**

fos4X GmbH founded in Munich in 2010 is a specialist in innovative, fiber-optic measurement technology in rotor blades of wind turbines. Measurement devices developed by fos4X are based on the technology of fiber bragg grating. These are optical interference filter written in optical fibers. Wavelengths that are within the filter bandwidth to the Bragg wavelength are reflected. The reflected wavelength shifts with the relative elongation of the glass fiber at the location of the fiber Bragg grating.

The fiber optic sensors with their excellent characteristics perfectly fit the demanding requirements of modern lightweight construction, for example in wind turbines. Sensors developed by fos4X are particularly characterized by their longevity (more than 100 million load cycles), large measuring amplitude, small size, long transmission distance and electromagnetic immunity.

**For further information: [www.fos4X.de](http://www.fos4X.de)**

### **Press contact:**

fos4X GmbH  
Bernd Kuhnle  
Thalkirchner Straße 210  
81371 München  
Telefon: +49 89 999542-17  
Telefax: +49 89 999542-01  
Email: [bernd.kuhnle@fos4X.de](mailto:bernd.kuhnle@fos4X.de)