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To whom it may concern

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ProfEC Ventus is DAkkS accredited as Testing Laboratory and as Calibration Laboratory. Accreditation scopes are specified in the Annex to deed D-PL-19142-01-00 and D-K-19142-01-00. MEASNET Member.

Ref.: Press Release

ProfEC Ventus becomes member of international Measuring Network of Wind Energy Institutes

Specialist for accredited wind measuring technology meets highest quality requirements

Oldenburg. 27. July 2016. One cannot achieve more. This June, ProfEC Ventus GmbH became member of **MEASNET**, an international Measuring Network of Wind Energy Institutes. This means that on an international scale, the accredited testing and calibration laboratory meets the highest requirements for the calibration of anemometers as well as the increasing requirements from the market. These sensors are important instruments for wind measurements and reliable energy yield prognoses of wind farm projects.
After one year of intensive work ProfEC Ventus has successfully completed all stages and obtained the coveted membership. The Expert Board of Measuring Network of Wind Energy Institutes (MEASNET) decides who is admitted as a member. Some of the most renowned international measurement institutes are represented as member in the network, which lays down the most rigorous requirements for a variety of measurements in the area of wind energy. “Being admitted to the network is a great honour to us. This confirms that we are able to understand, capture and evaluate the behaviour of wind sensors," says Mathias Hölzer, Managing Director of ProfEC Ventus. Our highly precise calibration of the devices reduces uncertainties of wind measurements at the sites of planned wind farms. In order to become admitted to the network, the calibration laboratory had to answer profound questions, develop analysing procedures and provide evidence. "For this, a detailed preparation beforehand had not always been possible," remarks Mr. Hölzer.
ProfEC Ventus is an independent, accredited wind energy consulting company acting as testing and calibration laboratory. It works according to the most recent norms, standards, guidelines and regulations of the International Electrical Commission (these also include the shortly published IEC FDIS 61400-12-1 Ed.2 08-2016), and has been accredited by the German Accreditation Body (DAkkS) according to ISO/IEC 17025. This is a mandatory prerequisite for companies to be admitted as a MEASNET member. "The network determines

even higher requirements for calibration laboratories. Thus we emphasize the quality of our work and promote our customers' trust in our work," says Mr. Hölzer. The portfolio of the Oldenburg-based experts also comprises accredited wind energy consulting services performed as testing laboratory, such as measurements and verifying of wind turbine power performance curves; Wind Resource and Energy Yield Assessments (including FGW TR6 Rev.9 compliance); Installation and Evaluation of Wind Measurements as well as Site Classification of Wind Turbines.

Operating on an international scale, the company is specialized in wind measurements for wind farms being developed and existing ones. It supplies necessary sensors and measurement systems, but also turnkey delivers worldwide completely equipped wind measurement masts at heights of up to 160 meters. The wind sensors are calibrated in a wind tunnel and then furnished with a MEASNET calibration certificate. This procedure has become necessary because anemometers (like wind vanes) measure within tolerances specified by the manufacturer when capturing the wind data. For this reason, the sensor behaviours are compared to the measurements of a reference device under pre-defined calibration conditions in a wind tunnel. This procedure ensures that the devices deliver usable and reproducible data.

It does make sense to apply calibrated measurement technology, as data from the measurement campaigns on site of a scheduled wind farm project, most of them lasting for one year, must be as precise as possible. They form the basis for wind and energy yield prognoses and often also for investment decisions involving millions of Euros. For this reason, tolerance-related variances in measuring have considerable consequences, as they lead to mistakes in evaluating the actual wind availability and may therefore affect the overall economic performance of a wind park. Often such measurements cannot be used for financing by banks, or only in a limited way. The energy yields forecasted for a concrete wind park result from the measurements on site and historic weather data, the sources of which must be valid and verifiable. "By aid of our calibrated measurement equipment we make sure that any uncertainties during measurement campaigns remain as low as possible. This has a positive impact on the financing and the required capital structure. Thus, there is a growing demand for calibrated sensors in the market, furnished with the MEASNET quality seal," concludes Mr. Hölzer.

Should you have any queries or if you need further information, please do not hesitate to contact us:

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Accreditations as Calibration Laboratory (D-K-19142-01-00):

1 Velocity of gases:

IEC 61400-12-1 ED.1: 2005	Wind turbines- Part 12-1: Power performance measurements of electricity producing wind turbines
CDV IEC 61400-12-1 ED.2:July 2015	Wind turbines- Part 12-1: Power performance measurements of electricity producing wind turbines
MEASNET Version 2 2009-10	Cup Anemometer Calibration Procedure

2 Direction of flow:

CDV IEC 61400-12-1 ED.2:July 2015	Wind turbines- Part 12-1: Power performance measurements of electricity producing wind turbines

Accreditations as Testing Laboratory (D-PL-19142-01-00):

1 Measurement of Wind Turbine Power Performance:

IEC 61400-12 1999-07	Wind turbine generator systems- Part 12: Wind turbine power performance testing
IEC 61400-12-1 2005-08	Wind turbines- Part 12-1: Power performance measurements of electricity producing wind turbines
IEC 61400-12-2 2013-03	Wind turbines - Part 12-2: Power performance of electricity producing wind turbines based on nacelle anemometry
FGW TR 2, Rev. 16 2010-01	Determination of Power Performance and Standardised Energy Yields
QM_TPI-02 2014-09	Power Performance Measurement

with reference to:

IEC 61400-1 1999-02	Ed. 2: Wind turbines generator systems - Part 1: Safety requirements (withdrawn standard)
IEC 61400-1 2005-08	Ed. 3: Wind turbines - Part 1: Design requirements
IEC 61400-2 2006-02	Wind turbines - Part 2: Design requirements for small wind turbines
EEG 2014-07	German Renewable Energy Act 2014 (EEG 2014}
MEASNET Version 5 2009-12	Power Performance Measurement Procedure

2 Wind Resource and Energy Yield Assessment of Wind Turbines and Wind Farms:

FGW TR 6, Rev. 9 2014-09	Determination of Wind Potential and Energy Yields
QM_TPI-01 2014-09	Wind Resource Assessment and Energy Yield Assessment

with reference to:

MEASNET Version 1	Evaluation of Site Specific Wind Conditions

2009-11

3 Installation and Evaluation of Wind Measurements with Anemometers:

IEC 61400-12-1 2005-08	Wind turbines- Part 12-1: Power performance measurements of electricity producing wind turbines
FGW TR6 6, Rev. 9 2014-09	Determination of Wind Potential and Energy Yields
QM_TPI-03 2014-09 with reference to:	Measurement Installation
MEASNET Version 1 2009-11	Evaluation of Site Specific Wind Conditions

4 Site Classification of Wind Turbines:

QM_TPI-04 2014-09 with reference to:	Site Classification
IEC 61400-1 1999-02	Ed. 2: Wind turbines generator systems - Part 1: Safety requirements (withdrawn standard)
IEC 61400-1 2005-08	Ed. 3: Wind turbines - Part 1: Design requirements
IEC 61400-2 2006-02	Wind turbines - Part 2: Design requirements for small wind turbines