

October 2016

Updated Invitation
to the IEA WIND Task 32 Round Robin and Workshop #4 on

Power Performance: Update to Round Robin for FDIS IEC 61400 12-1 Ed. 2 Calculation of Uncertainty for Lidar Application

Date: Round Robin began in August 2016. Final workshop will be 14 December 2016
Workshop Venue: Strathclyde University, Royal College Building, Room 2.15, Glasgow, Scotland
Round Robin and Workshop leader: Luke Simmons, DNV GL

Introduction to IEA Wind Task 32

The main objective of the Task 32 is to identify and to mitigate barriers to the use of the lidar technology in wind energy applications such as site assessment, power performance, loads & control, and complex flow. One yearly workshop is organized for each of the four applications focusing on one specific problem, and with a well-defined program and tangible outcome. In the case of power performance, both Task 32 and the Power Curve Working Group (PCWG) have identified the application of the uncertainty guidelines as a problem area. To achieve the highest value in the workshop, the round robin is being organized to engage participants prior to the event.

More details can be found on the [task website](#) and the [PCWG website](#).

Objective

Ground-based lidar systems will be included in the upcoming Ed. 2 of IEC 61400-12-1 for power performance measurements. The application of lidars for power performance measurements has been thoroughly evaluated including in a previous Task 32 round robin exercise¹. However, the uncertainty guidelines for the application of lidar have been evolving rapidly. The objective of this round robin is to invite industry stakeholders to participate in an exercise applying the methods from the FDIS for IEC 61400-12-1 Ed. 2 (Doc-693B-FDIS-Draft_06June2016_Clean or latest available version) to evaluate the uncertainty of power performance measurements using lidar. In parallel to this round robin exercise being performed the PCWG will be developing analysis examples to be made publically available to the wind industry. Further, preliminary and final results of the round robin will be presented at industry

¹ R Wagner, B Cañadillas, A Clifton, S Feeney, N Nygaard, M Poodt, C St Martin, E Tüxen and J W Wagenaar, "Rotor equivalent wind speed for power curve measurement – comparative exercise for IEA Wind Annex 32", Journal of Physics: Conference Series, vol. 524, no. 1, p. 012108, 2014

meetings (e.g. Power Curve Working Group meetings) and a workshop will be held for industry stakeholders to discuss the uncertainty results including the value of using lidar for power performance.

Expected Outcome

The first round of results will be presented to the PCWG in September of 2016. This initial result will provide the industry with an overview of the uncertainty resulting from Ed. 2 of IEC 12-1 and also the applicability of the guidelines by different industry stakeholders. A second round of analysis will be completed prior to December. At the workshop in December the final results will be presented and made available via the PCWG website. The final results and discussions from the meeting in December will be summarized in a report and published in a suitable format. Further, the PCWG will also make available analysis examples to guide the industry in the application of the new uncertainty guidelines partially based on feedback from this exercise.

Schedule

The proposed schedule for the round robin is detailed below:

July and August 2016	Distribute round robin dataset and instructions to registered participants. Allow for question period for participants until end of August.
1 September 2016	Results due to be summarized and presented at PCWG meeting on 7 September in Pamplona
September 2016	Present a summary of results and then investigate differences and identify clarifications to be provided in a second exercise, if justified
October 2016	Request second round robin be conducted, results due by first week of December.
December 2016	Collect final results, prepare summaries for workshop

Participation in round robin and workshop

For participation in the second round robin and/or the workshop, please register by sending an email to the Operating Agent Representative David Schlipf (IEAWind.Task32@ifb.uni-stuttgart.de). Please state in your registration email:

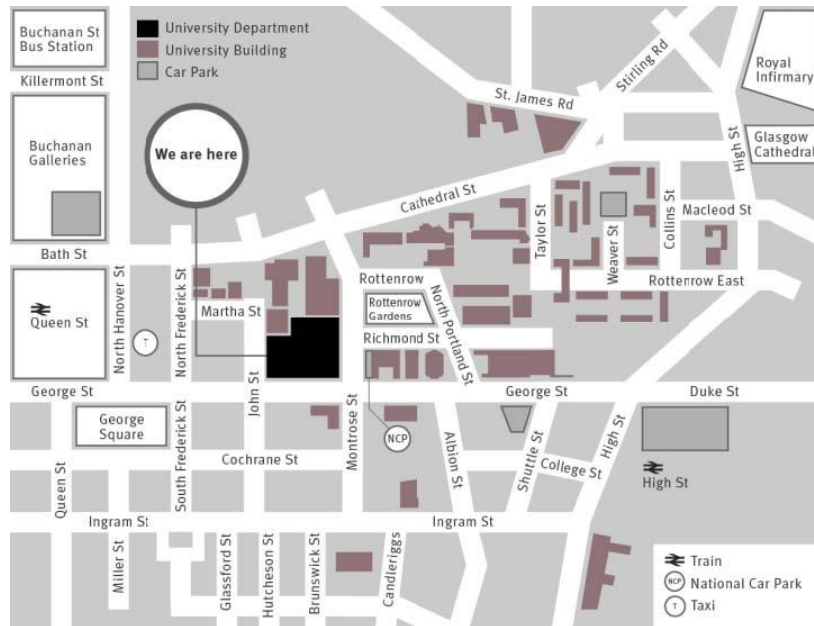
- Name and Institution, Member country
- Please describe your stakeholder role (e.g. system developer, end user, lidar supplier, academic, ...).
- Do you intend to participate in the round robin and also attend the workshop?

Please register latest 11 November 2016. Participation in the round robin is neither a commitment nor a requirement to attend the workshop. However, participants of the round robin will be prioritized, if we need to limit the number of participants.

Workshop details

The workshop will be held on 14 December at the below venue.

Department of Electronic and Electrical Engineering
University of Strathclyde, Royal College Building, Room 2.15
204 George Street
Glasgow, G1 1XW, UK



Hotel information will be provided at a later date at our [website](#).

Workshop Program

- 9:00 Registration opens, Start with coffee/tea
- 9:30 Start of workshop – Introductions, background, who is IEA Task 32 and what is overlap/interaction with other lidar stakeholder groups
- 10:00 Summary, comparison and discussion of final results (DNV GL – Luke Simmons)
- 11:00 Coffee Break
- 11:15 Worked examples from PCWG (RES - TBC)
- 12:15 Lunch
- 13:30 Begin afternoon session
- 13:45 Slot 1: NREL and uncertainty (NREL - Andrew Clifton)
- 14:15 Slot 2: Open (TBC)
- 14:45 Slot 3: Shortfalls of REWS and nacelle lidar (Siemens – Ioannis Antoniou)
- 15:15 Coffee Break
- 15:30 Slot 4: Nacelle lidar and uncertainty – UniTTE update (DTU – Rozenn Wagner)
- 16:00 Slot 5: EDF – Experiences and expectations from a project developer and operator (EDF – Hugo Herrmann)
- 16:30 Closing session: Discussion on outcome of the round robin and workshop, follow up items, and IEA power performance roadmap for 2017
- 17:30 End of Day 1
- (evening) Joint dinner

Expected Participants

All kinds of stakeholders – system providers, end users (offshore wind farm developers / operators, turbine OEMs), lidar manufacturers, consultants, academics.