



IEA Wind Task 52 Meeting Minutes

IEA Wind Task 52 Kick-off / General Meeting

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1 Day 1: Tuesday 24 May 2022

IEA Wind Task 52 is creating a worldwide network of wind lidar researchers and users who meet regularly and work on identified key themes to facilitate the large-scale deployment of wind lidar.

The Task 52 Kick-off / General Meeting took place online. The meeting was designed to introduce the new task (as relaunch of IEA Wind Task 32) and its work programme for the upcoming four years. The virtual meeting was organised as a mix of presentations, discussion, and working group sessions.

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Time	Activity
14:00	Welcome and introduction from Operating Agent (OA)
14:15	Wind lidar deployment: status quo (session with three presentations) <ul style="list-style-type: none"> • Andy Clifton and David Schlipf "Task 32: looking back" • Peter Clive "Lidar: the new normal" • Gregor Giebel "Task 51: Forecasting and the connection to the Lidar Task"
15:15	Coffee / tea break
15:25	Wind lidar deployment: perspective (Panel discussion incl. short introductions of panelists) <ul style="list-style-type: none"> • Rebeca Rivera Lamata • Francisco Costa • Poul Hummelshøj • Ioannis Antoniou • Eric Simley
16:25	Wind lidar overview (Andy Clifton) with short stakeholder presentations <ul style="list-style-type: none"> • VAISALA – Dominic Champneys • ZX Lidar – Matthew Smith • Titan Technologies – Joe Zhou
16:50	Wrap-up, outlook Day 2

Disclaimer

The presence of a person's name or company name in this document should not be taken to imply that a person or their employer agrees with any of the opinions set out here.

1.1 Welcome and introduction from OA

The day started with a welcome and introduction by the Operating Agent Julia Gottschall. Most presentations from our events are available through the Task 52 Zenodo repository at <https://zenodo.org/communities/ieawindtask52/>. OA slides from the Task 52 Kick-off / General Meeting are found under <https://doi.org/10.5281/zenodo.6788217>.

After a short introduction of the IEA Wind Technology Collaboration Programme (TCP) and Task 52 as a relaunch of Task 32, the focus objectives of the two meetings days were outlined. Day 1 was designed to focus on our Task 52 mission and vision, Day 2 to introduce and discuss the Task 52 work programme.





1.2 Wind lidar deployment: status quo

This session, moderated by co-Task Manager David Schlipf, included three presentations on different collaborative initiatives within the field of wind lidar. Andy Clifton and David Schlipf presented results and conclusions from the previous IEA Wind Task 32 on Wind Lidar with focus on the third phase from 2019 to 2021. Peter Clive elaborated in his presentation "Lidar: the new normal" on the relationship between pre-normative and normative actions within, e.g., IEA Wind and IEC, respectively. Popular examples are the development of guidelines for both nacelle lidars and floating lidars. Finally, Gregor Giebel introduced IEA Wind Task 51 (Forecasting) and highlighted connections to the Wind Lidar Task.

Presentation slides will be made available on the Task 52 website or Zenodo.

1.3 Wind lidar deployment: perspective

The next session was organised as a panel discussion including the five panelists (see list of names above) and the Operating Agent / Task Managers as moderators. The guiding question for the discussion was: how can/should we work together on research to make wind lidar the best and preferred wind measurement tool for wind energy applications?

All panelists briefly introduced themselves and their experience with lidar systems within the field of wind energy.

The following points were identified in the discussion:

- We need to increase reliability, introduce new designs, develop a lidar-controlled vocabulary, and eventually decrease costs for lidar technology and applications.
- To innovate we need to understand the problems by putting industry and research together and develop joint strategies and solutions; further we should make use of different dissemination channels, improve the sharing of results, and attract the society's interest.
- In general, we should make use of IEA Wind Task 52 to promote the "working together" of academia and industry; share knowledge and accept discussions and challenges from each other; continue to develop best practices and industry standards; but be realistic about what lidars can and cannot do.
- Sometimes lidar is not the best measurement tool. It is important that we try to use the best tool for each particular case.
- More specifically, there is a need for a new approaches to facilitate cheaper and faster calibration of lidars. More effort is also needed concerning the correct TI evaluation, use of lidar in complex terrain, and not least the use of nacelle lidar in power curve evaluation for offshore wind farms.
- Academia need to learn the "real challenges" of lidar systems through the collaboration with industry, and find suitable applications together with stake-

holders.

- Addressing the aspect of bankability, there is a long road to an industry standard. Research work needs to be specified and translated into simple and specific industry applications.
- To the question "what can Task 52 do to facilitate the interaction between academia and industry?" it was replied that academia need to know what industry expects from academia in order to clarify the topics that should be addressed.

The discussion round was concluded with the question in which type of lidar the panelists would invest in the next 5 years and why. The following spontaneous replies were collected:

- One panelist would not invest in a single lidar but rather in creating a modular lidar that can be used for different applications. This can be, e.g., a scanning that can execute different scanning patterns and that can be used in combination with other lidar parts.
- Another panelist would invest in scanning lidar and would like to collaborate with researchers to solve the problem associated with these devices in complex terrain.
- A third reply and suggestion was to invest in a lidar that demonstrates its suitability for a particular application. This involves not only the hardware but also software to make sure that we can use the lidar right away.
- Another reply mentioned new ideas with scanning lidars because they can bring a lot of new benefits.
- And the last panelist in the round went for nacelle lidars, especially in control applications, to build confidence in this sort of applications.

Slides of panelists' introductions will be share on our Task 52 website on Zenodo.

1.4 Wind lidar overview

For the final session of Day 1, Andy Clifton first introduced a lidar market analysis which was conducted previously within Task 32 for the year 2021.

Three stakeholders, who had access to the results of the study beforehand, were asked to present their (companies') position and reflection. Dominic Champneys from VAISALA pointed out that lidars are not just replacing other measurement technologies but also bring further innovations and new applications. Matthew Smith from ZX Lidar explicitly suggested a methodology for deriving the current and future adoption rates of wind lidar measurements. And finally, Joe Zhou from Titan Technologies commented on the implementation of floating lidars in the Asian market.

1.5 Wrap-up, outlook Day 2

Day 1 closed with a short wrap-up and outlook to Day 2. It was pointed out that minutes and (some of) the presented slides will be shared but no recordings of the sessions.

2 Day 2: Wednesday 25 May 2022

Time	Activity
14:00	Welcome and summary of Day 1 / Introduction of working groups, followed by detailed presentations
14:10	Working Group #1: TI (Jakob von Eisenhart Rothe)
14:30	Working Group #2: LAC (David Schlipf, keynote: Shigang Yao)
14:50	Working Group #3: Complex terrain (Alexander Stoekl, keynote: Andrew Hastings Black)
15:10	Coffee / tea break
15:20	Working Group #4: Cold climate (Marc Defossez, keynote: Claudia Hodonou)
15:40	Working Group #5: Digitalization (Andy Clifton, Francisco Costa)
16:00	Working Group #6: Scanning lidar offshore (Andy Oldroyd, keynote: Atsushi Yoshimura)
16:20	Q&A on working groups in break-out rooms
16:50	Wrap-up / organizational

2.1 Welcome and summary of Day 1

Day 2 started with a short summary of Day 1. After that, the Operating Agent introduced the Task 52 work programme developed around four themes: 1. Universal inflow characterization, 2. Replacing met masts, 3. Connecting wind lidar, and 4. Accelerating offshore wind deployment. For each theme, two deliverables were proposed in the task proposal. So far six working groups have been initiated working on the deliverables.

Further to working groups and their individual meeting schedules, the task format is set up to include webinars (as online seminars to share topics or results with the broader wind lidar community), workshops (to collect participants for discussing a specific topic, and possibly initiate a new working group), and general meetings (as the present one).

2.2 Introduction of working groups

After general work programme was introduced, each already initiated working group got a 20-min session to introduce their individual work programme and motivate the topic by a keynote presentation.

Each of the working groups is still open for further participants, working group short descriptions and calls for action will be published on the Task 52 website.

2.2.1 Working Group #1: TI

Jakob von Eisenhart Rothe presented the working group which was already initiated during Task 32 and showed results from the initial phase – see <https://doi.org/10.5281/zenodo.6815531>. The work is focused

on a round-robin exercise which will be continued as part of Task 52.

2.2.2 Working Group #2: LAC

The new working group on Lidar-Assisted Control (LAC) was introduced by David Schlipf, followed by a keynote presentation from industry participants. Aim of the working group is the publication of a report on recommended practices (RP).

2.2.3 Working Group #3: Complex terrain

The Complex Terrain Working Group was introduced by Alexander Stökl with the goal of finding robust limits for the deployment of ground-based wind lidar in complex terrain and for the applicability of correction methods. The general introduction was followed by a keynote presentation by Andrew Hastings Black, presented slides can be found under <https://doi.org/10.5281/zenodo.6815545>.

2.2.4 Working Group #4: Cold climate

The Cold Climate Working Group was presented by Marc Defossez – see slides here: <https://doi.org/10.5281/zenodo.6815555> – followed by a keynote presentation from Claudia Hodonou. The working group was already initiated under Task 32, a specific work plan for the continuation under Task 52 is currently under discussion.

2.2.5 Working Group #5: Digitalization

Andy Clifton introduced the theme "Connecting wind lidar" which is not a working group yet but may include work on a lidar ontology which was initiated under Task 32 and was briefly presented by Francisco Costa.

2.2.6 Working Group #6: Scanning lidar offshore

The work plan of the sixth working group was presented by Andy Oldroyd, followed by a keynote presentation from Atsushi Yoshimura. Presentation slides are found here: <https://doi.org/10.5281/zenodo.6815569>.

2.3 Q&A on working groups in break-out rooms

After the six presentations, all interested participants could meet and discuss with the working group leads in separate break-out rooms. First expressions of interests were collected. At this point it should be noted that the participation in Task 52 working groups requires a formal task membership. For further details regarding the formal process and corresponding national contacts, the Operating Agent may be consulted.

2.4 Wrap-up / organizational

The meeting was concluded with a few general notes and instructions how to get involved. The IEA



Wind Task 52 Operating Agent can be contacted via IEAWind.Task52@iwes.fraunhofer.de, and the task is also present on LinkedIn (<https://www.linkedin.com/showcase/4037465> or search for "IEA Wind Task 52"). Interested participants should become a (formal) Task 52 participant to join an already active working group, or propose future webinars and/or workshops.

3 Summary

IEA Wind Task 52 was kicked off with a 2-day (online) General Meeting on 24/25 May 2022. The meeting brought together wind lidar researchers and end users from industry and academia to explore how to facilitate the large-scale deployment of wind lidar in the wind industry. The first day of the meeting focused on the Task 52 mission and vision with sessions on the status quo and future perspective of wind lidar. The second day was organised to introduce the Task 52 work programme with presentations of the six (so far) active working groups under the task's four central themes.

Task 52 welcome anyone interested in working together on research to make wind lidar the best and preferred wind measurement tool for wind energy applications. Please see iea-wind.org for details.

List of Participants

The following table lists people who attended part or all of the meeting. The presence of a person's name or company name in this list should not be taken to imply that a person or their employer agrees with any of the opinions set out in these minutes. We apologise for any spelling mistakes, omissions, or other errors. Also note that some (online) participants could not be identified properly.

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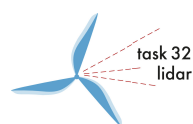
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The International Energy Agency is an autonomous organisation which works to ensure reliable, affordable and clean energy for its 30 member countries and beyond. The [IEA Wind Technology Collaboration Programme](#) supports the work of 38 independent, international groups of experts that enable governments and industries from around the world to lead programmes and projects on a wide range of energy technologies and related issues.

[IEA Wind Task 52](#) exists to support the large-scale deployment of wind lidar for wind energy applications. (Note that our logo still needs to be updated – proposals are very welcome.)

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