INTRODUCTORY NOTE

IEA WIND TASK 11 TOPICAL EXPERT MEETING 96

ON

WIND PLANT DECOMMISSIONING, REPOWERING, RECYCLING

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BACKGROUND

Among the RES technologies, wind energy has nowadays reached a significant maturity level and a wide penetration. According to IEA WIND Annual Report 2017, at the end of 2017 the total net installed power capacity was 520.3 GW onland and 18.8 GW offshore respectively.

Many countries –i.e. United States, India, Germany, Denmark, Spain, The Netherlands, United Kingdom, Italy - had already installed a not-negligible amount of wind capacity within 2000. In the last decade the growth rate of the wind energy installation was very high.

Considering that nowadays the average life of an onland wind farm is twenty years and twenty-five offshore, a significant amount of wind plants is reaching the end-of-life very soon.

Different options can be considered for the wind plants at the end-of-life: the life extension, the decommissioning and the repowering.

In the first case, exhaustively discussed in a previous TEM\(^1\), the life of the plant is extended after a properly assessment and, if necessary, revamping interventions. The power plant goes on producing electricity.

In the second case the whole power plant is dismantled.

In the third case, the word "repowering" is intended as an intervention finalized to the complete replacement of the old wind turbines.

In order to increase the economic and environmental sustainability of the these interventions, the attention is more and more focused on recycling challenges and

\(^1\) TEM93 "WT Lifetime Extension", Roskilde, Denmark, December 2018, https://community.ieawind.org/communities/community-home?CommunityKey=d27171f-a717-4dd0-b3d0-e3053bb9c5a
opportunities for wind turbine components. The biggest portion of wind turbine components are quite easy to recycle and reuse (i.e. metal parts), but the non-metallic portion of components, namely the blades, is less easy to be recycled.

**OBJECTIVES**

This topical expert meeting will put together experts and stakeholders to start a discussion on the main issues affecting this very hot topic such as

- Which is the destiny of the dismantled turbines/components?
- Which are the recycling challenges and opportunities?
- Is there a second hand turbine market?
- Which are the relevant technical, economic and environmental aspects of the decommissioning/dismantling and repowering?
- Are there any dedicated support measures for dismantling or repowering projects that consider the recycle of components?
- Are there any relevant regulatory and authorization issues?
- Best practices?
- Lessons learnt?

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Participants will then explore the potential needs of collaboration in order to prepare a first outline of a new IEA Wind Task.

**TENTATIVE PROGRAM**

The meeting will be hosted by GSE, Gestore Servizi Energetici, in Rome on November, 14-15 2019

**14th NOVEMBER 2019**

Introductions

1. End of life capacity: what to do?
   a) Life extension (outcome from TEM 93)
   b) Regulatory aspects
   c) Measure to support
   d) Onland and offshore similarity/differences

2. Decommissioning

Challenges, opportunities, experiences, lesson learnt

3. Recycling

Challenges, opportunities, experiences, lesson learnt
4. Repowering
Challenges, opportunities, experiences, lesson learnt

15th NOVEMBER 2019
1. Discussion and identification of need of research activities and information exchange in the three main topics (decommissioning, recycling, repowering)
   (Breakout sessions? Moderators? One only big room)
2. Summarizing the results of the breakout sessions
3. Discussion about the interest of a IEA Task on the topic of the meeting.
4. Conclusions and next steps

INTENDED PARTICIPATION
Participation is expected from academia, research institutes, regulatory bodies, policy makers, wind farm owners/operators and related associations, wind turbine manufacturers, waste and recycling industry etc.

All participants will be expected to make a presentation on the work that they have been involved in the above topic areas.

EXPECTED OUTCOMES
The outcome of this meeting will be a document including:
- Presentations from the participants
- Summary of the breakout sessions.
- Framing potential proposal for a IEA Wind task.