

# Activities of the Working Group “Roadmap”



AWEC 2019, Glasgow  
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R&D Panel

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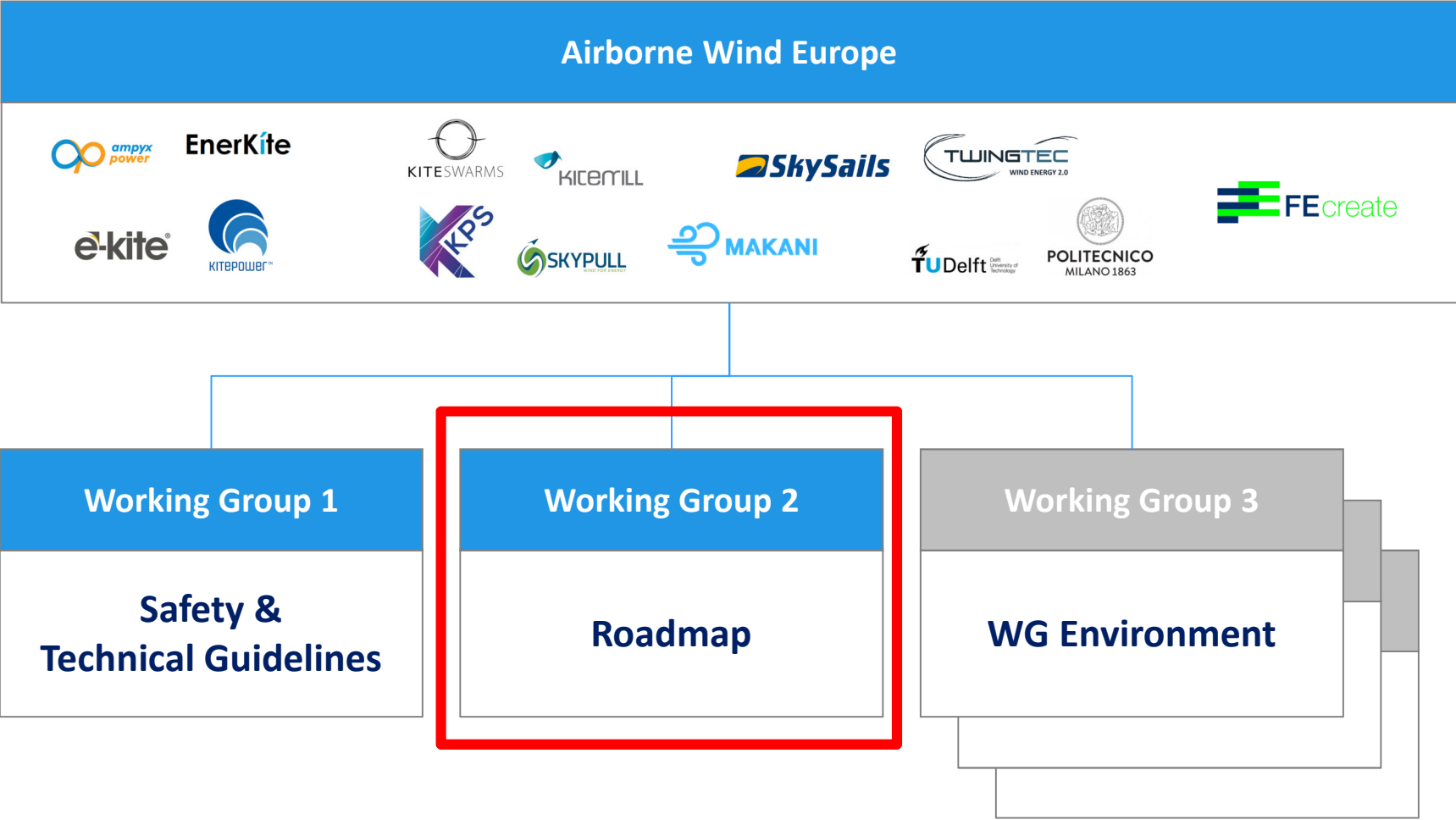
Policy and Regulation

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# Two active Working Groups since end of 2018



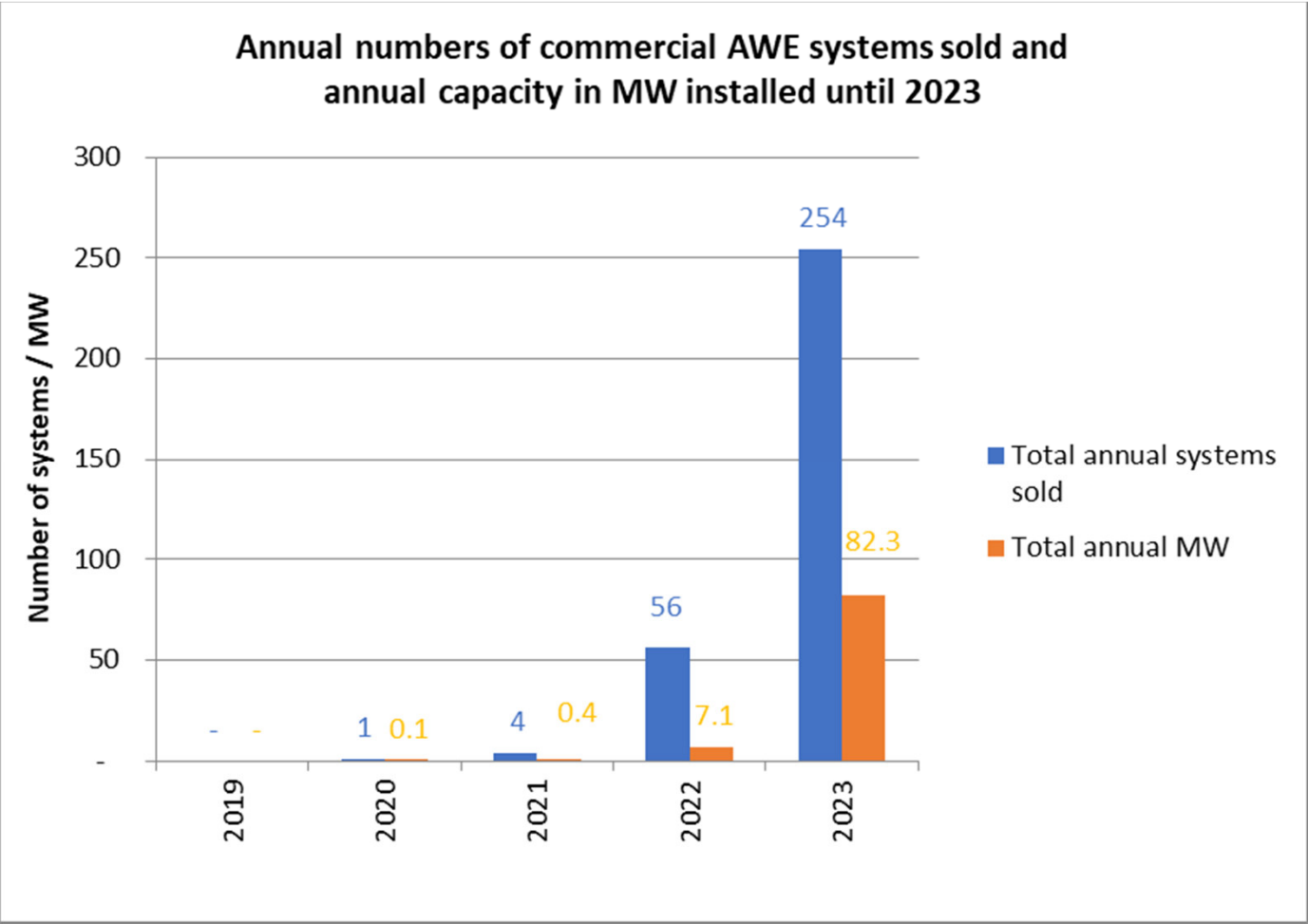
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## A Roadmap for the European Airborne Wind Sector

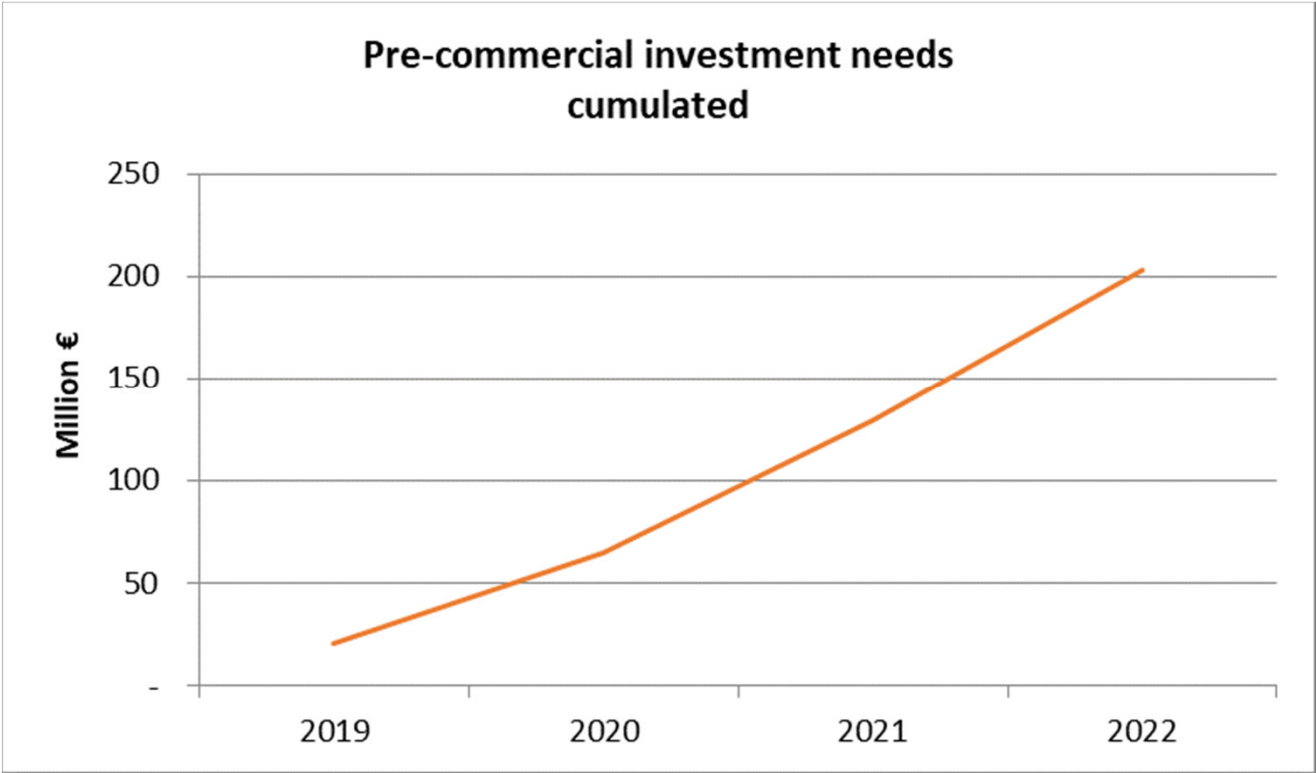
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- Objective: Estimate sector's growth plans in a **bottom-up approach**.
  
- Ten companies collaborated in Working Group
- Data reflect their business plans until 2030 for pre-commercial and commercial projects:
  - Number of systems
  - MW installed
  - investment needs
  - jobs created.
  
- Top-down analysis to estimate AWE market potential for 2050

# First commercial systems in 2020/21; 9 out of 10 companies plan commercial systems by 2023

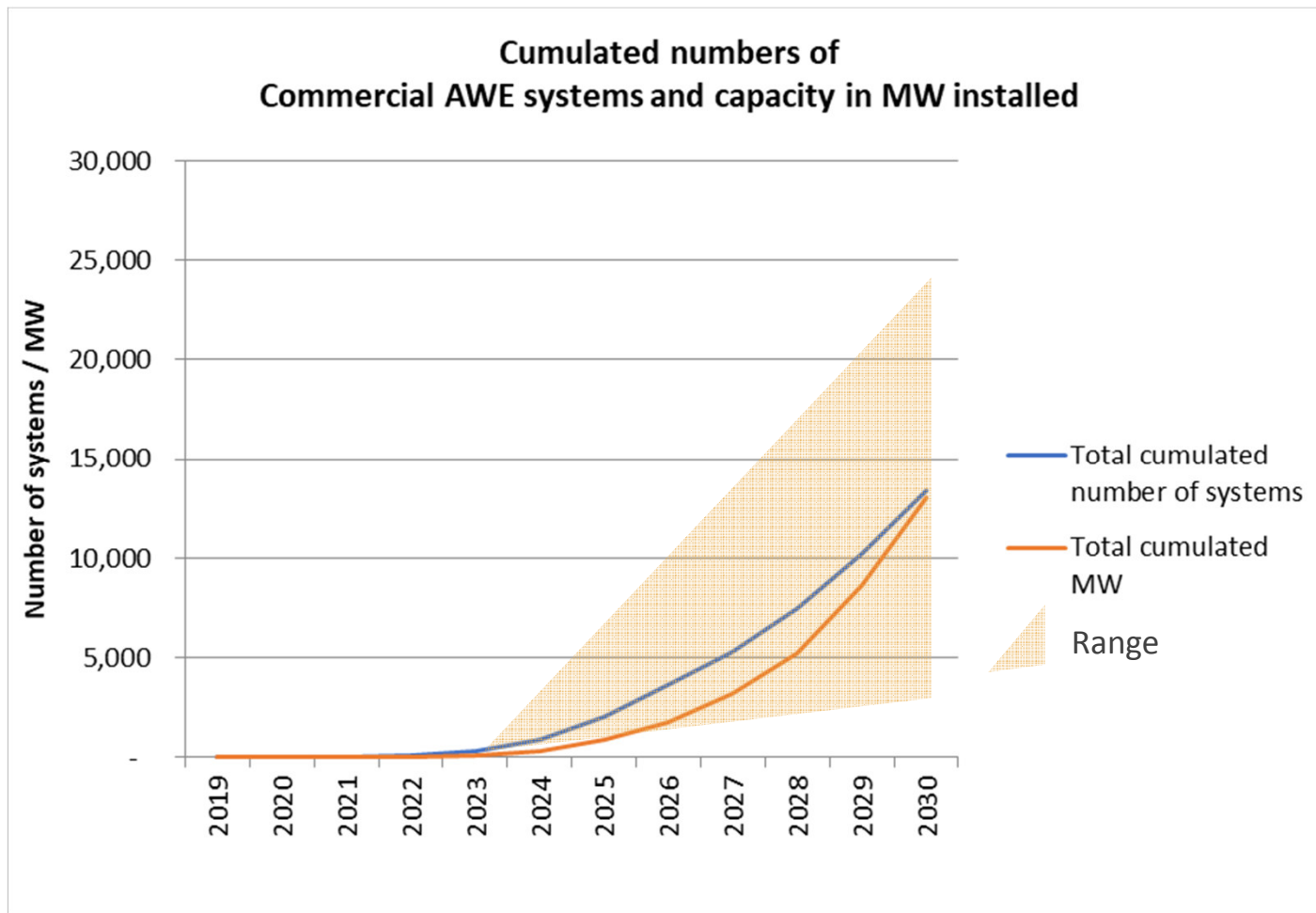


# At least 200 Mio Euro cumulated investment needs until 2022



Note:  
Two companies did not provide investment needs

## Cumulated capacity in the GW-range by 2030 is seen as realistic – but companies are not confident about numbers yet



There are many unknowns:

- Technology
- policies
- regulation,
- markets
- etc.

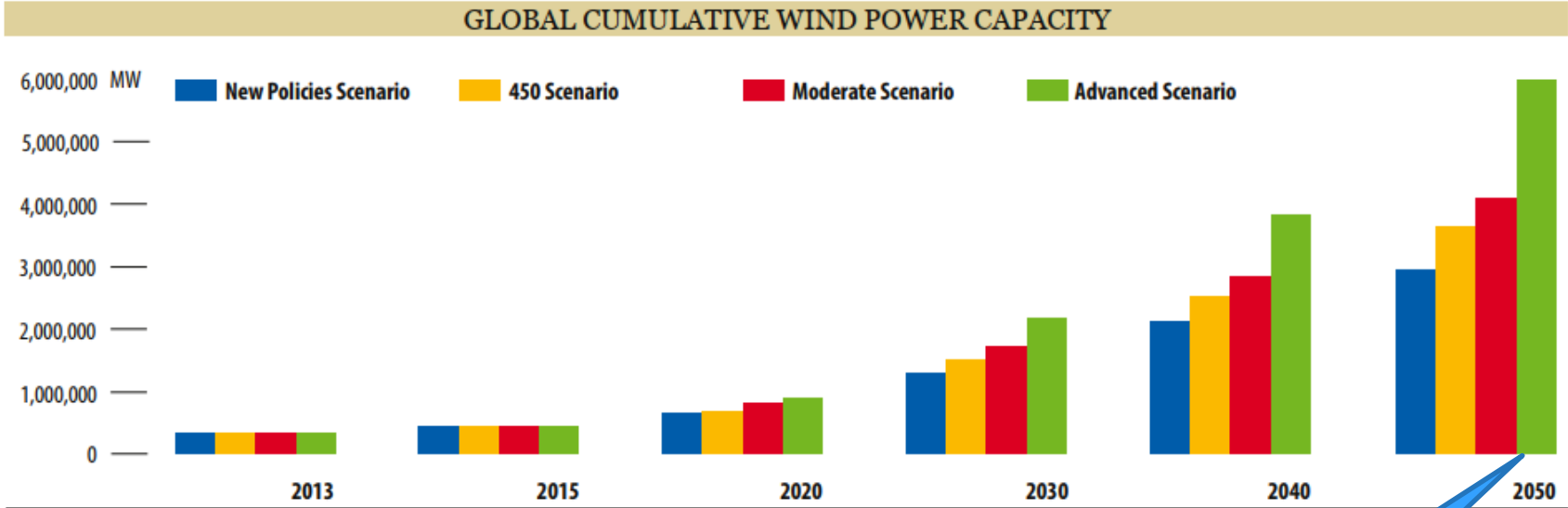
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## Very fast growth within a short time frame is possible

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- Within 10 years a technology can grow into the GW range in a single market
  - PV Germany in 2000-10: from a few MW to 15 GW (single market!)
  - UK offshore wind 2002-12: from 0 to 3 GW
  
- Within one year capacity in the GW-range can double in a single market:
  - PV Germany in 2008-09: from 1.9 to 4.4 GW
  - UK Offshore Wind 2011-12: from 0.5 to 1.1 GW
  
- But:
  - PV and onshore wind were proven technologies when large-scale deployment started while AWE is still in the development phase.

# GWEC 2016: Up to 5,800 GW by 2050

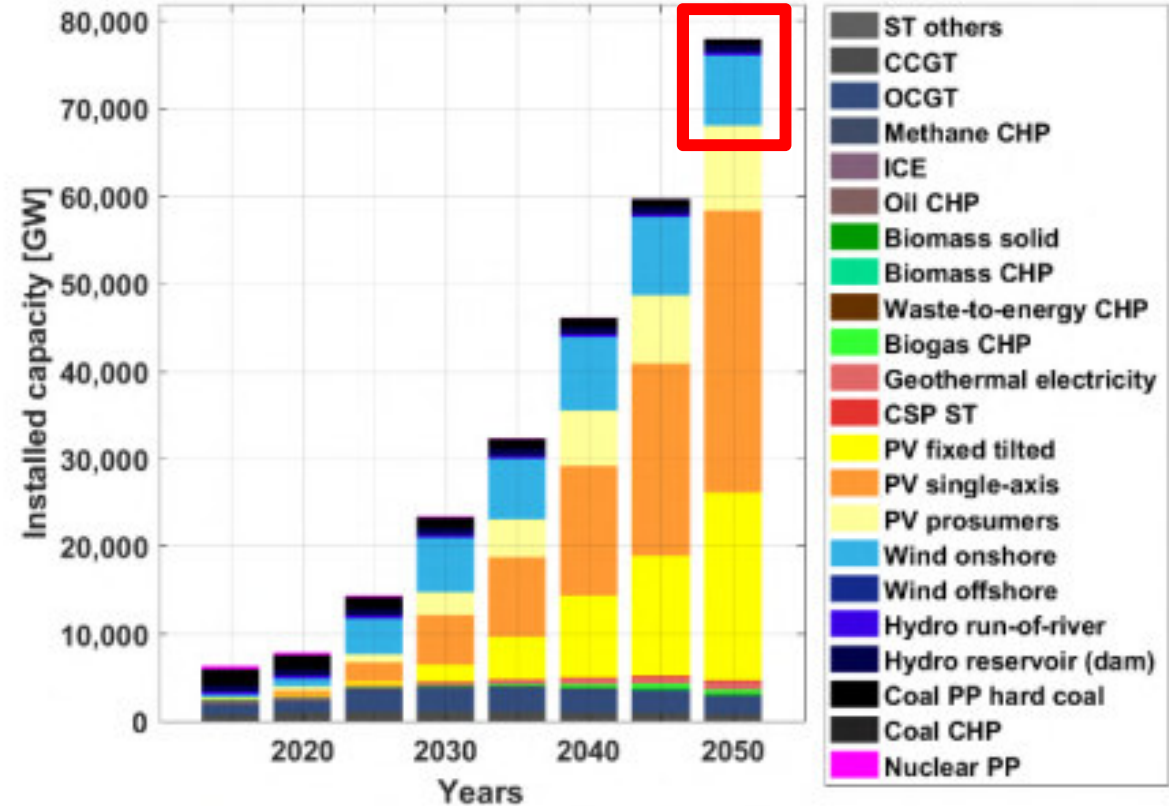


Which share could AWE have in 2050?

<https://gwec.net/publications/global-wind-energy-outlook/>



# Global 100% RE scenario: Global wind capacities of about 10,000 GW on- and offshore by 2050



Several hundred GW are realistic, if global wind capacity reaches 3-10,000 GW by 2050

LUT\_EWG 2019, Global Energy System based on 100% Renewable Energy (Lappeenranta University of Technology Research and Energy Watch Group)

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## Conclusions

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1. GW-range by 2030 possible – but many unknowns
2. AWE commercialization 2021 - 2024
3. Pre-commercial investment needs > 200 Mio EUR by 2022
4. Several hundred GW by 2050 seem realistic
5. Detailed study of potentials and scenarios required

**Thank you for your attention!**

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