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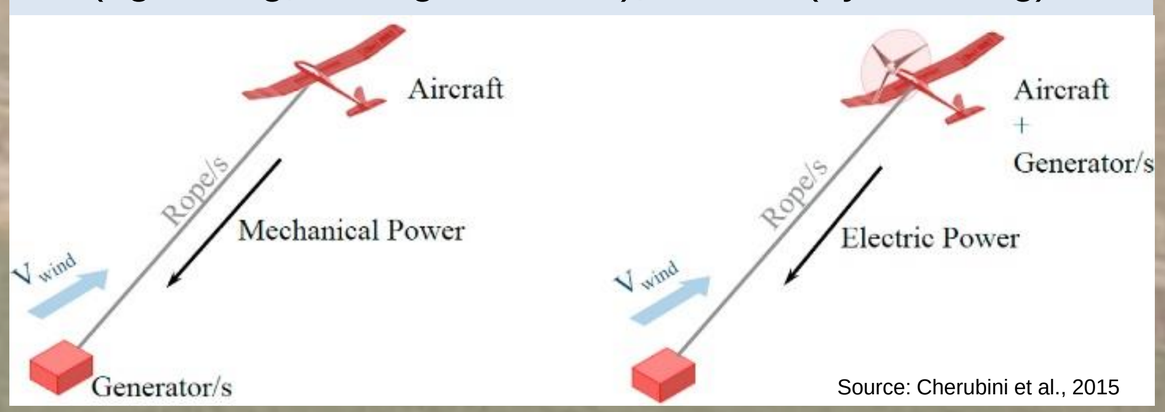
The Social Acceptance of Airborne Wind Energy

Current state of knowledge

- Our recently published literature review shows that there is **no empirical research to date on the social acceptance of AWE** (Schmidt et al., 2022).
- The reviewed literature on AWE identified five important issues, namely visual, acoustic, safety, ecological, and siting aspects, that might, to some extent, impact people's responses to the technology, as also indicated by research on other energy developments (Rand & Hoen, 2017).
- However, the AWE literature's claims are so far unsubstantiated and research on other renewable energies indicates that **not just the characteristics of an energy technology but also socio-psychological and situational factors** are important to the acceptability of an energy technology or project (e.g., the perceived fairness of the decision-making process, trust in project developers, policy contexts, meaning of local places) (Ellis & Ferraro, 2016; Rand & Hoen, 2017).

Background

- Airborne wind energy (**AWE**) is **an emerging wind energy technology** that could contribute to a sustainable energy transition.
- **An autonomous, tethered flying device operates at altitudes above 200m**, where winds are stronger and more constant.
- Electricity is produced by letting the device's tether unwind from a drum, which then powers a generator (ground-generation; figure left) or by having small generators on the device that directly convert wind energy into electricity (fly-generation, figure right).
- Devices consist of inflatable membrane (soft wing; see large photo), carbon fibre reinforced polymer and metal (rigid wing; see figure below), or both (hybrid wing).



Source: Cherubini et al., 2015

Future research agenda

- There is a need for empirical social science research on the acceptance of AWE, such as through surveys, interviews, focus groups, and lab or field experiments.
- Future studies should learn from the large body of literature on other renewable energy technologies but should also consider the distinctiveness of AWE (e.g., its flying nature; the use of airspace resources)
- **This PhD project will contribute to creating a meaningful understanding of how people perceive and respond to AWE** by examining how residents would respond to the implementation of AWE (through interviews and surveys of people living close to existing AWE test sites), and how the expectations of other stakeholders and their interactions with the public shape responses to the technology (Walker et al., 2010).
- Research **findings could serve as feedback to the field** and be considered in the design and deployment of AWE.

Relevance of research

- People's perceptions of AWE will impact how society respond to the technology's deployment.
- Research on other low-carbon technologies shows that **ignoring unfavourable public responses** (i.e., cognitive, emotional, and behavioural reactions) **can delay or even prevent proposed projects** (Ellis & Ferraro, 2016).

References

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