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Airborne Wind Energy Development Database

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Airborne wind energy (AWE) systems have reached a technology readiness level (TRL) at which a number of companies are deploying prototype systems with rated powers of up to several hundred kilowatts. As a consequence, topics such as reliability and safety [1], regulation and permitting [2], as well as environmental impact [3] and social perception of the new technology [4] are becoming increasingly important. Although regulations and social perception typically vary per country, a well-coordinated, networked approach to address these interlinked challenges will be indispensable for the commercial success of the technology. This requires a central and systematic collection and maintenance of relevant information.

The aim of this project is to compile an as-complete-as-possible database with information about

- the institutions involved in R&D of AWE systems,
- the physical prototypes that are currently tested,
- the deployment sites of these prototypes, and
- any other information on the R&D or deployment.

To facilitate the maintenance of this database, it is implemented in a way that its content can be displayed in various ways, depending on the specific use cases:

Research & development: Display a regional or world map showing where AWE systems are developed and where they are tested.

Permitting: List the types of permit that are used at the different test locations. Include the permitted modes of

operation, such as flight during day only, or also during night, etc. Environmental impact of AWE How does a current and planned deployment impact the natural environment of the sites? How are these sites embedded in the environment?

Social perception: Information about the social perception of the new technology and analyze possible interaction with natural preserves.

During its development, the database will first be closed to the public but made open access when reaching its final stage. Following the first release, stakeholders and the general public can upload information that will be taken into account to improve the database for future use.

References:

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[3] L. van Hagen: *Life Cycle Assessment of Multi-Megawatt Airborne Wind Energy*. MSc Thesis, TU Delft, July 2021.

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