Project one-pager VATTENFALL

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1. Project description

Vattenfall's goal is to enable fossil-free living within a generation, and we see hydrogen on a large scale as a crucial element in this green transition. In the same way, hydrogen plays a crucial role in achieving Denmark's climate goals and the Paris Agreement.

In particular, we see the development of fossil-free hydrogen as critical in the following areas, where joint European projects is particularly relevant:

- Hydrogen as a raw material for the energy-intensive industry and as a substitute for carbon-based raw material in industrial processes.
- Hydrogen as an energy carrier for decarbonisation of processes that are difficult to electrify directly e.g. in heavy transport.
- Hydrogen as a supplier of fossil-free flexible electricity to support a system with high volatility and integration of large proportions of renewable energy from wind and solar.
- In district heating networks, hydrogen-fuelled boilers can act as units that handle demand peaks, enabling a fossil-free heat supply in conjunction with other fossil-free heat sources.

Please select which part of the value chain for hydrogen your project focuses on (select one or more, where applicable):

Production	Transmission	Industrial application	Mobility	Energy	Housing application	Other
☒	☐	☒	☐	☒	☐	☐

2. Partnerships and spillover effect

Vattenfall has a strong presence in Denmark within offshore wind, and we consider this an optimal point of departure for contributing to the development of the hydrogen value chain in Denmark and neighboring countries such as Sweden and Germany.

Vattenfall is broadly positioned to contribute experience from hydrogen projects in the steel sector, such as HYBRIT, as well as refinery and mobility projects.

Specifically, we would be interested in engaging in partnerships in the following areas of the hydrogen value chain:

- Based on our Danish offshore wind farms, to develop the utilization of hydrogen for use in industry (refineries, steel, chemicals, cement).
- Find partners within water electrolysis systems, including optimized system design and operation incl. storage
- Find partners in downstream logistics, fuel cell technology for heavy transport (trains, buses, HDV, ships) from trailer-based solutions to hydrogen stations (HRS), where pipe connections are possible.
- Find partners in downstream logistics via pipelines to refineries and industry.
- Use of renewable electricity for power-to-gas use.
- Construction and safe operation of hydrogen storage in caverns?