AquaDuctus is the name given to the incremental expansion of Heligoland's port infrastructure to make the island the main hydrogen hub in the North Sea. In addition to marine research and the complete decarbonisation of the island, including routine traffic, the focus is also on the regional supply of use along the German North Sea coast with green hydrogen. Furthermore, Heligoland is to become the main location for a European hydrogen grid.

As the new AlphaVentus, SEN-1 will be the first project of its kind. With a capacity of up to 10 GW, the pilot project is paving the way for large-scale offshore electrolysis. This is decentralised with 1.5 GW or more, by expanding the duck bill towards the coast, clothes with conventional offshore wind generation and associated installation infrastructure. The development of a regeneration zone also addresses the issue of long-term storage.

The AquaPrimus pilot project benefits Germany as a research region in several ways. In terms of industrial policy, the prototype 200 MW decentralised generation unit that is ready for serial production is developed here and tested for the global market. At the same time, all parties involved gain valuable experience with the prototype in Sassnitz (HyStar-ter) and as well as with the first pilot plants on Heligoland and contribute the first 42 MW towards building the required capacity by 2025.

The incremental connection of offshore wind-hydrogen production plants with a capacity of up to 5 GW facilitates consumer and distribution planning processes as well as step-by-step expansion, synchronising demand and generation of green hydrogen. The cost savings compared to the alternative of five 2 GW HVDC connections with green hydrogen from the North Sea will be marked, the system will also have considerable benefits in terms of nature conservation and spatial planning.

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