

## Call for Master Thesis

### Design and installation of remote monitoring and control of the H<sub>2</sub>-Eco-Cube using a digital twin

#### background:

An island system consisting of energy generation, storage and consumption was developed at IWEN. With the help of this system, the generation and use of hydrogen, as well as the operation with different operation management strategies, are to be tested, among other things. The self-contained solution is to be operated in a container away from the institute in future.

#### task:

The aim of the thesis is to enable remote monitoring and control of the H<sub>2</sub> Eco-Cube. To this end, it must first be determined whether the existing actuators and sensors need to be supplemented and, if so, by which components. In addition, the necessary information and communication technology (ICT) must be determined, selected and installed. The ICT has the task of collecting and forwarding all relevant status data of the energy system. Commands are to be sent to the energy system with the help of the ICT. On the software side, a digital twin to be developed in the work is to be used to collect, display and monitor the data. This digital twin will ultimately be used to influence the system's behaviour. In addition, the digital twin must be able to make virtual changes to the system in order to be able to evaluate through simulations what influence these changes would have on the system behaviour.

#### prerequisite:

The call for applications is aimed at a Master's student with previous knowledge in energy technology.

#### framework:

Together with the Chair of Wind Energy Technology at the University of Rostock, we supervise students (m/f/d) on topics related to renewable energies and energy technology.

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