

SYSTEM DESIGN AND OPTIMIZATION OF AN ELECTROLYSER CONNECTED TO A WIND TURBINE

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Main goals: Wind energy is the fastest growing form of sustainable energy production and will continue to be very important in the energy transition in the coming decades. The continued growth of wind energy presents enormous technical, industrial and political challenges, especially in the storage of wind power during high production or low electricity consumption. Onsite production of hydrogen can be used for a variety of applications, including as transportation fuel and for generating electricity by using fuel cells or internal-combustion engine generators. The goal of this project is the system design of the integration of electrolysers and wind power. Different technical requirements will be addressed, such as wind turbine functional characteristics and physical limitations, installation of the electrolyser, Operations and Maintenance, and health and safety. Economic aspects also play a role, such as CAPEX and OPEX assessment revenues from electricity and hydrogen delivery. At the end the system will be optimized based on sizing, control strategies, integration of power-electronics, manufacturing and maintenance, hydrogen storage and transport, etc.

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