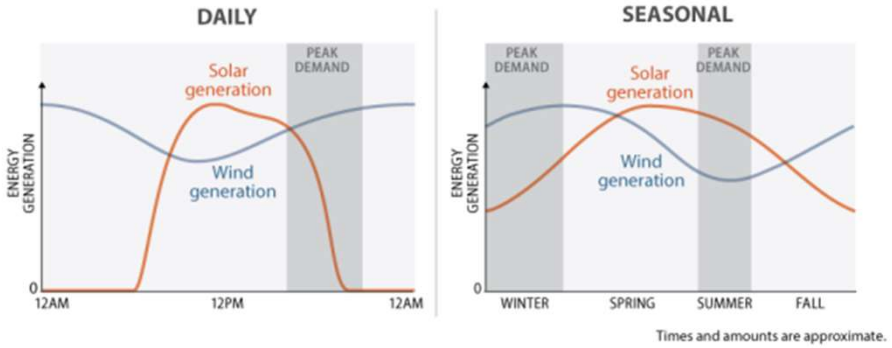
Generation of Location-Dependent Renewable Generation Profiles for Hydrogen Infrastructure Optimization within the Framework of the Energy Transition

Description

Hydrogen generation from renewable energies through electrolysis is a key component of the energy transition. Designing electrolysis systems requires detailed information about local energy generation. The goal of this bachelor's thesis is to develop a tool for generating renewable energy generation profiles based on available weather data. The type of generation (PV, wind) and the selected location can be freely chosen. Utilizing research on available meteorological databases like PV-GIS and energy generation statistics, appropriate data sources are identified and a calculation methodology is derived. This methodology is integrated into a tool for generating renewable generation profiles. The resulting power profiles can be utilized in subsequent simulations for designing hydrogen infrastructure.



Source: Lawson, A.: Maintaining Electric Reliability with Wind and Solar Sources: Background and Issues for Congress; 2019

Work Packages

- Exploration & Analysis of Available Databases and Generation Statistics (1 week)
- Process Representation and Methodology & Tool Development (3 weeks)
- Evaluation and Verification of Results (1 week)
- Documentation of the Written Work (3 weeks)

- Start: as of now
- Duration: ca. 2 months
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