

HYDROGEN IN THE ELECTRICITY INDUSTRY

SEMINAR, 1 DAY

For a long time, hydrogen as a flexibility option in energy supply was only a topic for research laboratories and studies. In the meantime, many governments are pursuing ambitious strategies to build a hydrogen economy and see hydrogen as an important building block towards climate-neutral energy systems. However, science and politics are also arguing about the "sensible" use of this energy carrier, which is to be produced artificially. The seminar teaches the relevant connections between the hydrogen economy and the energy system. Based on own analyses, production costs and price influences as well as potentials and possible applications will be discussed.

Your contents

Session 1: The value chain of the hydrogen economy

- Motivation for the use of hydrogen as an energy carrier
- Definitions of different types of hydrogen
- Infrastructure along the value chain: production, transport, storage, use

Session 2: Cost structures and price influences in the hydrogen economy

- Electricity procurement for power-to-gas applications (markets, prices, price hedging)
- Generation costs for hydrogen: is there a world market or world market price?
- Meta-analysis on different demand scenarios (global, national, sector-specific)
- Importance of CO₂ abatement costs for H₂ price development

Session 3: Hydrogen in the power sector - scenario assumptions and results

- Possible applications of green gases for climate-neutral energy systems
- Hydrogen as an energy storage option for the "cold dark" period
- Derivation of domestic and European market ramp-up and import volumes

Session 4: Framework conditions for the hydrogen economy

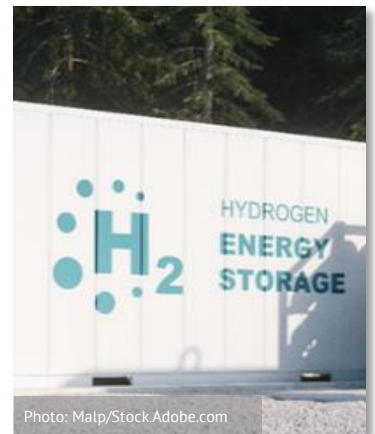
- Legal prerequisites for green hydrogen
- Classification of the hydrogen strategy of the German government and the EU
- Various interests around the hydrogen economy, example grid regulation
- Criteria for the sustainability of hydrogen: sources, own production vs. imports
- Situation of exporting countries

Session 5: Business models for the use of power-to-gas in the electricity market

- Analyses of electricity procurement costs of power-to-gas on the spot market
- Areas of application and revenue options for electrolysers on the balancing power market

Session 6: Hydrogen in long-term European electricity price scenarios

- Scenario assumptions on flexible demand in European countries
- Scenario assumptions on power generation with synthetic fuels
- Results: demand volume and influence on the electricity price



TARGET GROUP

- Specialists and managers from the energy industry with responsibility in the area of product or business field development
- Experts and executives from companies in the hydrogen industry
- Expert speakers from politics and interest groups

YOUR BENEFITS

After this seminar you will be able to:

- describe the value chain of the hydrogen economy,
- evaluate cost developments and price influences on hydrogen prices,
- evaluate the use of power-to-gas in the electricity market and
- classify and assess political funding instruments.

Use the seminar **Starter kit electricity industry** as ideal preparation for this seminar or supplement your market knowledge on flexibility options with the **Battery storage at the power market** seminar.