



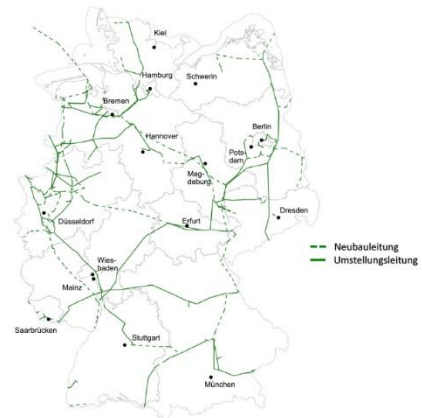
Master-Thesis

„Hydrogen Infrastructure in Germany – What is the Role of Electrolyzers in the Future?“

Background and Task:

The current use of electrolyzers in Germany is mainly focused on supplying local customers on-site. However, the planned development of the national hydrogen network by 2032 as part of the European Hydrogen Backbone, will fundamentally change the possibilities for supplying hydrogen. In addition to on-site production, consumers will also have the option of obtaining hydrogen from other regions via pipelines. This opens up the possibility for electrolyzers to be integrated into the energy system as flexible electricity consumers. In parallel, there is the potential of electrolyzers to provide balancing services. Among other things, these factors have a strong influence on the location decisions of electrolyzers and the expansion of renewable energies. The core tasks of this work include the development of an investment model for electrolyzers, electrical generation and storage technologies in the context of the upcoming hydrogen backbone network. Furthermore, cost differences between on-site and pipeline-based supply are to be worked out. The results will then be compared with current political goals and framework conditions in order to derive insights and recommendations for the future integration of electrolyzers into the German hydrogen network.

Genehmigtes Wasserstoffkernnetz



Requirements:

The student has successfully completed either „Power Systems Economics 2“ and/ or “Energy Systems Modelling” courses.

- GAMS and Excel knowledge necessary.

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