Analysis of Industrial Hydrogen Demand in Europe

Type of Thesis: Master or Diploma

Language: German/English

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Step 1 (Literature Analysis) – Research Project

Hydrogen plays a central role in the European energy transition towards emission neutrality and decarbonization. This project aims to give an extensive overview of how the scientific literature investigates future hydrogen demand and, based on the structured literature review, to derive a method of projecting future hydrogen demand for further analyses. This embraces a categorization of (1) sectors and industries included, (2) methodologies of how the demand is derived, (3) whether and which alternatives to hydrogen are included and (4) which years are analyzed. The project includes an appropriate visualization of the results. The differences identified have to be discussed and evaluated.

Step 2 (Modeling Task) – Energy Model

Based on the research project's results, Europe's potential hydrogen demand over time is calculated using the evaluated method from the research project. Further, considering existing companies' announced hydrogen production projects, further hydrogen suppliers are needed to cover the gap between demand and supply are located using an optimization model. Finally, conclusions concerning the transformation of the infrastructure are drawn.