

Too Many Policies, Too Little Impact? A Systematic Evaluation of Hydrogen Support Instruments

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Extended Abstract

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Abstract Summary

The hydrogen sector plays a crucial role in achieving decarbonization targets, particularly in hard-to-electrify sectors. Accordingly, the ramp-up of hydrogen markets has become a key policy objective, leading to the implementation of a wide range of policy instruments in recent years. Despite this, progress in hydrogen deployment is currently stalling. At the same time, academic literature lacks comprehensive and systematic evaluation frameworks for hydrogen policy instruments.

This study addresses this gap by developing a systematic evaluation framework and applying it to the German hydrogen policy landscape. Existing literature is reviewed to identify evaluation dimensions and limitations in current approaches, such as lack of systematic indicator structures and insufficient operationalization of evaluation criteria. Initial results suggest that a focus on reasons for market failure as policy targets, combined with a three-level evaluation procedure covering efficacy, effectiveness, and efficiency, provides a structured approach for analyzing policy instruments in the hydrogen sector. The framework development foresees the operationalization of the three evaluation levels using multiple qualitative and quantitative indicators.

The application of this framework is expected to reveal conflicting objectives, redundancies, and efficiency gaps within the policy mix. It thereby provides a basis for deriving policy recommendations to improve instrument design and enhance overall efficiency. Future research may extend the analysis once ex-post data becomes available, enabling further empirical validation.

Presenting Author Biography

Florian Biniosek completed his Diplom program in Industrial Engineering and Management at the Technical University Dresden (TUD) in May 2022. After his studies, from May 2022

until October 2024, he worked for a technology company in the hydrogen industry. Since November 2024 he is part of the Energy Systems and Market Design Lab at the University of Technology Nuremberg (UTN). His research interest includes the ramp up of hydrogen markets as well as the development of hydrogen and hydrogen derivatives based supply chain networks.