

Brazil and Europe (Germany/Austria) Comparative Policies in Dealing with Energy Shortage, Renewable Energies, and Hydrogen

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Abstract

Objective: The dissertation analyzes economic, political, and environmental scenarios in Germany, Austria, and Brazil, proposing an eco-centric energy policy for national energy security and economic vitality. It evaluates hydrogen's potential as a sustainable energy source for future deployment. **Methodology:** Adopting a comparative analytical approach, the study is underpinned by a bibliographic scientific and journalistic literature review. It tackles technological challenges such as renewable energy scale-up, hydrogen production, policy alignment, and financial resourcing through literature review, data collection, and policy engagement. **Originality:** Research identifies a gap in energy policy synthesis addressing environmental integrity and energy security. It underscores the importance of transitioning to renewable energy and hydrogen technology integration amidst global energy disruptions. **Results:** Strategic recommendations will have been formulated to scale renewable energy, establish hydrogen production networks, and harmonize policies. It will provide insights for policymakers and stakeholders to advance the energy transition. **Methodological Contributions:** This study offers a comparative analysis model and policy formulation method across national energy scenarios. It enhances the understanding of sustainable energy transitions facing geopolitical and economic challenges. **Social and Environmental Contributions:** The dissertation proposes energy policies promoting sustainable development, energy security, and economic resilience. It champions a diversified energy mix, efficiency, and technological innovations for a sustainable energy future.

Keywords: Climate change, Energy crises, Energy market, Hydrogen, Renewable resources