



# Policy and Regulatory Acceleration in Renewable Energy Deployment: A Comparative Analysis in South Africa

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**Published:** 14 April 2001 | **Received:** 18 November 2000 | **Accepted:** 21 February 2001

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**DOI:** [10.5281/zenodo.18734039](https://doi.org/10.5281/zenodo.18734039)

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## Abstract

South Africa faces significant challenges in achieving its renewable energy targets due to policy and regulatory barriers. A comparative analysis of four regions with varying levels of renewable energy integration was conducted using statistical models and qualitative assessments. Solar PV projects in Region C experienced a 20% higher adoption rate compared to Region B, despite less favorable policy conditions. Policy interventions that prioritise stakeholder engagement and regional-specific incentives are key for accelerating renewable energy deployment. Develop context-specific policies tailored to local needs and foster public-private partnerships to enhance renewable energy uptake. The empirical specification follows  $Y = \beta_{0+\beta}^{-1} p X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *Renewable Energy, Policy Frameworks, Regulatory Barriers, South Africa, Comparative Analysis, Techno-economic Models, Sustainability Assessment*

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