

State of Renewable Energy Development in South Africa

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The world is experiencing one of the worst energy crises exacerbated by the Russia-Ukraine conflict in addition to the traditionally known global population growth-induced rising energy demand, poor organization of resource distribution, general aging infrastructure, inefficient use of energy resources, and limited or no renewable energy options. The effect of the crisis is, among others, the untenable increase of fossil fuel and electricity prices, making renewable power technologies much more economically attractive. Like many countries in the continent and abroad, South Africa has not been spared. The country's rising energy demand overwhelms existing power-generating plants, critically threatening energy security. The country is traversing the worst electricity shortage in its history, resulting in power cuts extending up to 12 hours a day in some parts of the country, hampering economic growth, increasing job losses, and threatening the viability of basic social systems upon which these services depend. Aging coal-fired plants that still contribute more than 80% of South Africa's electricity generation has been the first culprit to the electricity crisis the country is experiencing. South Africa thus has a double challenge to solve, improve its electricity generation and reduce its carbon dioxide footprint as outlined in the outcomes of COP27. Like in many countries, South Africa has launched the Just Transition, an integrated climate-cum-economic development program that seeks to navigate from its heavily carbon-intensive economy that put the country at the 13th highest emitter position globally in 2020. Through renewable energy investment, South Africa could leverage high economic multiplier effects whilst reducing its current vulnerability to fossil fuel price volatility and the associated negative environmental externalities. This paper reviews the current state of renewable energy in South Africa, focussing on the policy environment, technical feasibility, and prospects. Appropriately selected international global and national energy reports and energy-related policy documents are critically reviewed, and recommendations on possible pathways to accelerate the Just Transition implementation are outlined.

References

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Abstract Category

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