

# Spatial Divergence of South Africa's energy transition and its implications for energy justice

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## Key Messages:

- Results indicated some social opposition among local people towards adopting renewables in South Africa mainly due to concerns about coal related-job losses.
- Results showed that the 50 km restriction on socio-economic development (SED) and enterprise development (ED) schemes aggravates existing socio-economic disruption.
- Some respondents believe that the main institutional barriers to shifting away from coal are a lack of political commitment.
- We recommend that the South African government change SED and ED policies from a district basis to a more regional basis for a just energy transition.



## Overview of South African Energy System

The South African energy system is heavily dependent on coal, as coal meets approximately 77% of the country's total energy demand [1–3]. To tackle air pollution and contribute to the Paris Agreement, which aims to limit the planet's average air temperature increase to well below 2°C". South Africa must accomplish a radical transition in the pattern of its coal extraction and use and facilitate renewable energy (RE) technologies [4]. While the government's decision to install 18.2 GW of renewable energy (RE) by 2030 is a step in the right direction, this shift away from coal towards more RE across the economy is not understood systemically [5]. This briefing assesses the key barriers to South Africa's energy transition by providing practical insights into challenges and opportunities on the ground via conducting 13 semi-structured interviews (between June and Sep 2020) with RE developers and professionals, RE policy advisors, and economic development officers. All interviews were assessed against the energy justice framework. According to Sovacool et

al. [5], the energy justice framework focuses on how benefits and access to low-carbon energy systems and services are distributed throughout society. Several energy scholars have used this framework as an analytical tool to understand how values get built into energy systems or to resolve common energy problems [5, 6]

The briefing investigates the impact of geographical differences in the availability and utilization of RE resources to implement a just energy transition. This study also evaluates the impact of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) on contributing to achieving socio-economic development aspirations and goals at the local level. The results pointed to two key barriers to a just energy transition in South Africa: socio-economic and institutional barriers.

## Socio-economic barriers to energy transition

The results reveal several socio-economic barriers that contributed to slowing down the South African energy transition. These are discussed in more detail below, with selected interview quotations dispersed throughout:

### The high dependence on the economic structure on coal

In South Africa coal is an important foreign exchange earner [6]. In addition, coal mining and other industries related to coal are a significant source of employment (for 50,000 people) in the country [4]. Therefore, the key risk of shifting from coal towards more RE is aggravating economic fragility, especially when South Africa faces extreme poverty rates of 25% and unemployment of 38% [4]. This was emphasized by several respondents:

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*"When you look at areas like Mpumalanga in South Africa, over 80% of the GDP from that community derives from coal fire production. So, if you move the country away from coal, what happens to the structure economy of communities such as Mpumalanga?" (I11)*

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### Social opposition towards RE projects

Results indicate that, among local people, there has been some resistance towards adopting RE in South Africa. This resistance is mainly due to i) fear of losing their coal-related jobs, ii) social disruption caused by foreign workers, iii) high expectations of communities regarding RE economic benefits, iv) unequal distribution of socio-economic benefits of RE projects, despite vast RE resources in South Africa.

Regarding the latter point, RE projects are often far from the regions where coal mines are closing, which results in the unequal geographical distribution of socio-economic benefits associated with RE projects. This further increases the income gap between coal communities and other communities.

## Institutional Barriers

The South African energy system has a large degree of path dependency, meaning it remains resistant to reform [6]. As a consequence, significant policy support is needed to catalyse the energy transition. However, evidence from establishing new coal power stations in South Africa indicates

the lack of policy support and political commitment for this transition [7].

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*"Initially, there was only one new mine, and they started developing the second mine and the third mine. Finally, the third mine, called Gamsberg Mine, started operation about two and a half years ago". (I2)*

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The lack of political commitment was also identified as the primary institutional barrier to shifting away from coal by some respondents:

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*"There seems to be a little political will to move the government policy towards RE projects; still, policy focus is on coal generation." (I5)*

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Some respondents believe that the lack of administrative integrity has also contributed to the slow pace of energy transition.

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*"The challenge with the transition from coal is that many of these coal mines belong to people involved with politicians, as you know lots of fraud and corruption is happening in South Africa in recent years". (I4)*

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Currently, South Africa is facing severe supply-side crises, mainly because of the government's mis-investment in new coal power plants and the failed liberalization of the power sector [6].

### The policy implementation weaknesses: REIPPP

The South African REIPPPP is a competitive tender process designed to increase RE projects and reduce the socio-economic disruption of RE adoption. As part of the REIPPPP, all awarded projects must spend a certain amount of their income on socio-economic development (SED) and enterprise development (ED) in the local community within a 50 km radius of the project site. The South African REIPPPP has successfully enabled and attracted investment in utility-scale RE [8]. However, the interview results indicate SED and ED schemes within REIPPPP have been unsuccessful in managing socio-economic conflicts caused by RE development. This was mainly due to i) poor management and the lack of monitoring, ii) a lack of evaluation of community needs and demands, iii) a lack of

clarity on the REIPPPP economic initiative, iv) political interference, and v) the 50 km radius restriction.

The poor management and the lack of monitoring of SED and ED have been highlighted by several respondents:

*"We are not seeing any monitoring around tracking on a continuous basis whether SED and economic development is actually viable. A lot of the companies go with this pie in the sky idea, and it does not succeed because nobody is there to advise them and say, hold on, get a specialist who knows this and can help you."* (I12)

*"The municipality has no monitoring schemes to see what the renewable energy firms are investing in the communities. So, they are unaware of this investment and the money they are investing in the communities. So, maybe there should be just a bit of better communication and monitoring schemes".* (I2)

Several respondents have also stated the 50 km radius restriction on SED and ED schemes aggravate, rather than manages, the unequal distribution of socio-economic benefits of RE projects.

*"What is happening is this 50km radius, the labour-sending area. There are about 4 solar plants covering only 50km. Certain areas are being extremely over-funded, while others are not having anything done."* (I3)

Respondents believe some communities can get over-funded. In contrast, other communities not within a 50 km radius of RE projects can experience a lack of job opportunities because of RE developments in other area

## Recommendations

This policy briefing evaluates South Africa's energy transition's key socio-economic and institutional barriers using the energy justice framework.

The research identifies the unequal geographical distribution of socio-economic benefits of renewable energy (RE) projects, high reliance on coal as a source of income, and social resistance to the adaption of RE as the key barriers. However, the existing policy schemes, including socio-economic development (SED) and enterprise development (ED) schemes, have been unsuccessful in effectively managing socio-economic conflicts caused by RE developments. The central points of conflict are the 50 km boundaries and poor management and monitoring of the schemes. To effectively manage energy transition the following recommendations are made:

1. The South African Government should provide training to re-skill coal industry workers for the renewable energy sector. This will help to decrease social opposition toward RE projects and concerns about coal-related job losses.
2. The South African government should change SED and ED policies from a district basis (50 km radius restriction) to a regional basis for a socially just energy transition.
3. Furthermore, the government should design a continuous monitoring scheme to evaluate the effectiveness of the existing policy schemes and engage with the public transparently.

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## Notes

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