

# **How can the transition to a low carbon economy and society be made more just in South Africa?**

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## **Introduction**

At the December 2009 Copenhagen Climate Change Summit, the President of South Africa, Jacob Zuma pledged that the country would cut down greenhouse gas emissions by 34% by 2020 and by 44% by 2025, (Baker, 2015). This statement is proof of how South Africa is committed to climate change. On the other hand, it suggests that structural changes are necessary to make the pledge realistic. The main concern about the structural changes is the inclusion justice dimension and employment creation, particularly in areas that rely on carbon-intensive industries and sectors. Therefore, this paper argues that the only means of making the transition to low carbon just is by creating jobs for the affected coal miners. In order to support the argument, this essay will firstly present the origins and definition of the concept just transition. Secondly, it will examine the structure of the energy sector, with some emphasis on renewables energy initiatives. Thirdly, it will analyse the international trends of low-carbon transitions in Germany and Poland given the similarities in the energy structure in South Africa. Finally, it will examine the likelihood of a transition in South African with an emphasis on the justice dimension of the transition.

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## **1. Defining a just transition**

This section aims to present a brief definition of the origins, what is meant by a “just transition”, and choose the definition which interests for the research.

Healy & Barry (2017) argue that the discourse on energy justice pays limited attention to the idea of a just transition, a policy initially suggested by international trade unions. The concept of a just transition was initiated by trade unions in the late 1970s in the United States, it defended the support for employees whose jobs were under threat due to the environmental legislation. Cha (2020) indicates that a just transition attempts to integrate environmental, labour, and social justice systems through the implementation of environment-friendly policies. The definition of just change remains largely accessible to various interpretations. More recent conceptualizations tend to go beyond a restricted, reactive work/environment (or climate) connection.

Healy & Barry (2017) argue that a just transition should entail a more active state involvement in the political economy, creating employment in green industries, partly to compensate the now abandoned fossil fuel sectors, and the State and capital (and for example, those able to afford more taxes), absorb negative social-economic costs in carbon capitalism and provide a safety net and adequate comfort.

The definition which interest for this paper is the one that backs the idea that a just transition must be able to create employment for miners in green economies. The reason for this choice is the fact that the discussion of the energy transformation has always been focused on technical and economic issues linked to the energy system. Therefore, ignoring the socioeconomic dimension that the shift away from coal entails. In our case study, a just transition must take into consideration not only the workers but the communities that depend on mining positive externalities to make their everyday living.

## **2. Structure of the Energy Sector in the Republic of South Africa (RSA)**

Regarding the structure of the energy sector in RSA, this section will illustrate how it is structured and what it is the relevance of fossil fuels in the sum of energy produced in South Africa.

South African energy sector is characterised by the intensive use of coal. According to Strambo et al., (2019) the reliance on coal is 92% to generate electricity and less than a quarter to produce liquid fuels. The country is regarded as the seventh biggest producer of coal, (Adedeji et al., 2018).

Winkler & Marquand (2009) argue that the first effort to track GHG emissions in South Africa was in 1990 and 1994, it was collected as a part of South African's Initial National Communication to the United Nations Framework Convention on Climate Change (UNFCCC). The main objective was understanding the levels of three key GHGs: Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>) and Nitrous Oxide (N<sub>2</sub>O). Among the African countries, South Africa ranks first in times of greenhouse gas emissions.

Regarding per capita emissions, the country emissions are high when compared to the EU and even higher when compared to the BRICS (Brazil and India). During the Copenhagen Summit in 2009, RSA committed itself to decrease the greenhouse gas emissions by 34% by 2020 and 44% by 2025, (Baker et al., 2014). RSA is going through a moment of steady changes in the energy sector, the government plans to invest USD 50 billion on clean energy to reduce the dependence over fossil fuels which account for nearly about 85% of its electricity.

Having described the structure of the RSA energy sector and concluded that a vast majority of energy produced is through non-renewable sources and acknowledged that changes in the energy sector are inevitable. In the next section, I present the current tendencies of renewables.

### **2.1.The renewable energy landscape in South Africa**

The following is a brief description of the renewable energy landscape in RSA, this section aims to describe the renewable energy initiatives as well as presenting their contribution to the total of energy produced in South Africa.

Pollet et al., (2015) state that “the emergence of renewable energy in RSA had had a long gestation period, but fairly short birth”. The birth of renewable energy initiatives can be justified by the development of the Renewable Energy Independent Producer Procurement Program (REIPPPP) in South Africa, initially known as the Renewable Energy Feed-in Tariff (REFIT). The country is considered one of the largest centres for renewable energy developments due to the considerable number of projects designed and implemented.

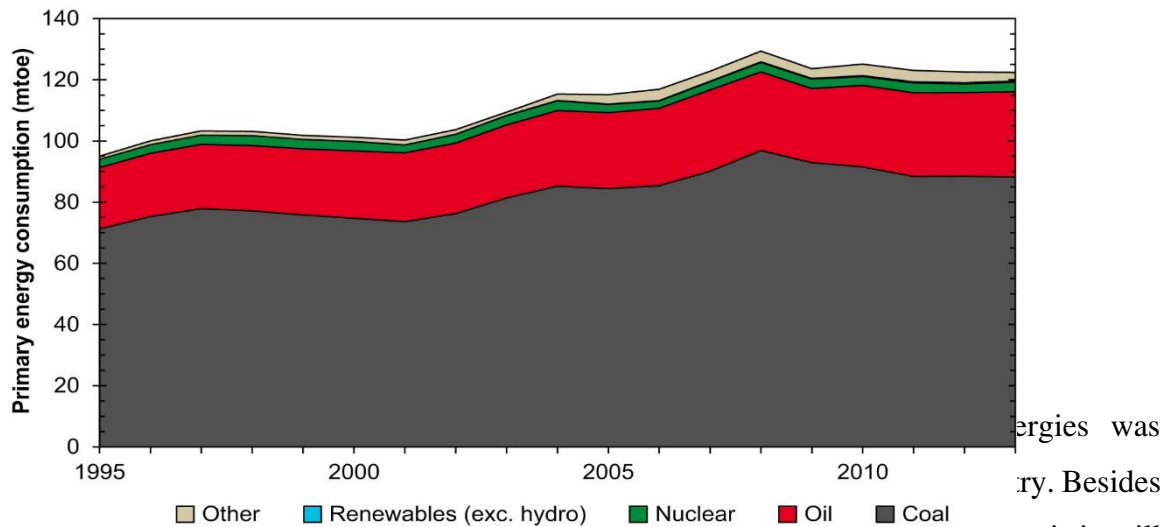
The key explanations for REIPPPP's performance can be attributed to programme management factors, programme design factors and market factors, (Eberhard et al., 2014).

In terms of programme management considerations, a problem-solving strategy, consistency, and openness are given priority, ignoring the implementation of administrative arrangements. Investment in a team with vast expertise-built credibility with all stakeholders in the private sector. In terms of programme design, priority was given to learning from previous experiences and building private sector trust, (Eberhard et al., 2014).

REIPPPP created a rapid way of generating capacity, size, and structure of the bidding process, they would be multiple bid winners what came as an incentive of participation. And the market factors, the main objective was attracting international investors to the renewable energy sector, the programme has been able to appeal to almost 90 million USD in foreign direct investment. Thus, making the country the 12<sup>th</sup> most attractive investment for renewable energy (*More Agreements Signed for Energy Generation*, 2013).

Other initiatives such as the Green Economy Accord is in place in South Africa. The main objective of the initiative is the job's creation. It identifies 12 job drivers that can contribute to the job's creation, 5 million jobs by 2020, (Pollet et al., 2015). This accord promotes alliances between different actors (government and societal partners). The projections made by the Industrial Development Corporation suggest that RSA could create green jobs form the green economy. The report argues that 462, 000 jobs will be generated until 2025. Integrated National Electrification Programme (INEP) is another initiative that aims to facilitate low-capacity municipalities in underprivileged areas to fast-track supply electricity, (Tinto & Banda, 2005).

Figure 1 – Energy breakdown in South Africa 1994–2014



ry. Besides the growing interest and investment in renewable forms of energy generation, it is still premature to conclude that the “green initiatives” will have the necessary impact in a total of the energy produced in RSA. Jagger et al., (2013) indicate that by rising the share of renewable energy, South Africa can positively impact jobs. In the next section, I discuss the relationship between low carbon transitions and employment generation.

### 3. Low Carbon Transitions in Poland and Germany

While decarbonisation is inevitable, there is a consensus that the transition must incorporate the basic idea of justice to all involved stakeholders. In this section, Poland and Germany pathways to low carbon economy will be analysed given that both countries had the similar energy structure with RSA, Germany has managed to change the situation while Poland has been making noticeable developments.

Poland is one of the Top 6 European Union emitters, accounting for approximately 8% of EU-wide emissions in recent years. Per capita emissions are close to the EU average, but the Polish economy is among the most emission-intensive, considering its low level of income. Germany inherited a coal intensive economy from the post Second World War period which was considered the foundation of its development and political reconstruction, (Oei et al., 2020). In the 1990s, Poland had almost 415, 000 jobs in hard coal mining, the trends changed rapidly to 155, 000 in the 2000s. In 2018. There were still over 80,000 workers employed in mining, numbers comparable with South Africa.

On its turn, the coal mining sector in Germany guaranteed direct employment for more than 600,000 in 1957, while there is another number of several jobs which were indirectly linked to the coal mining sector. Ruhr and Saarland were considered the biggest hubs of production. The liberalization of coal prices may explain the decrease in the number of jobs created in Germany from 1958. The competition with other cheaper coal from overseas and oil led to the substitution of hard coal, (Oei et al., 2020).

When the coal crisis began in Germany most miners were able to move to the metal industries areas. Although there was a reasonable number that was left behind and they had to choose options such as retirement and retraining, interestingly the unemployment rates were kept low. In contrast, In Poland miners were considered a vulnerable group. They would be less likely to invest in learning new skills than relatively younger employees. Another not less important factor to be considered is the fact that the wage gap in Poland meant that miners were likely to demand high wage, (Baran et al., 2020). For this reason, Poland is an example of a country that could dramatically increase the cost of low-carbon transition by the frictional labour movement.

Given that both countries belong to the EU Markandya et al. (2016) argues that the job effects arising from the transition to low carbon cause great concern. The rise in unemployment following the 2007 – 2008 financial crisis and proclaimed the intention of countries to mitigate environmental constraints have jointly contributed to the implementation of a range of policies aimed at creating green jobs. The overall impact on jobs was positive in 21 out of the 27 EU member states. Many reasons can be attributed to relative success in creating green jobs. Funding mechanisms such as the Green Employment Initiative have been helping member states to create employment opportunities. Another cornerstone is the Climate Framework, which aims to reduce the GHG by 40% (from 1990), as well as boost the contribution of clean energies consumption by 27%, (Adedeji et al., 2018).

Oei et al., (2020) indicate that Germany implemented other measures to minimise the impact of coal mine closures, such as:

- Reorientation by dissolving the coal and steel dominated local structures - The urban and transport transformation of the city to enhance its connectivity with other metropolitan areas is a critical step in facilitating the transition.
- Attracting (new) industries and labour policies – Both mining and government entities showed resistance in offering their infrastructures to new industries such as Ford Motor Company. The industries that were successful in settling in the mining areas had support from the local councils.
- Including soft location factors and regional identities - Expanding the education system in the mining regions is necessary to allow the population to adapt to new labour market conditions.
- Managing the transition – the system of governance played an important role. The regional model of decision making showed to be more effective since it promotes active participation of local elites.

#### **4. Is a just transition possible in South Africa?**

Having defined what is meant by a just transition in the first section, I will now move on to discuss the feasibility of the just transition in RSA focusing on employment. This section will also look at lessons from Germany and Poland on how they are making their transitions.

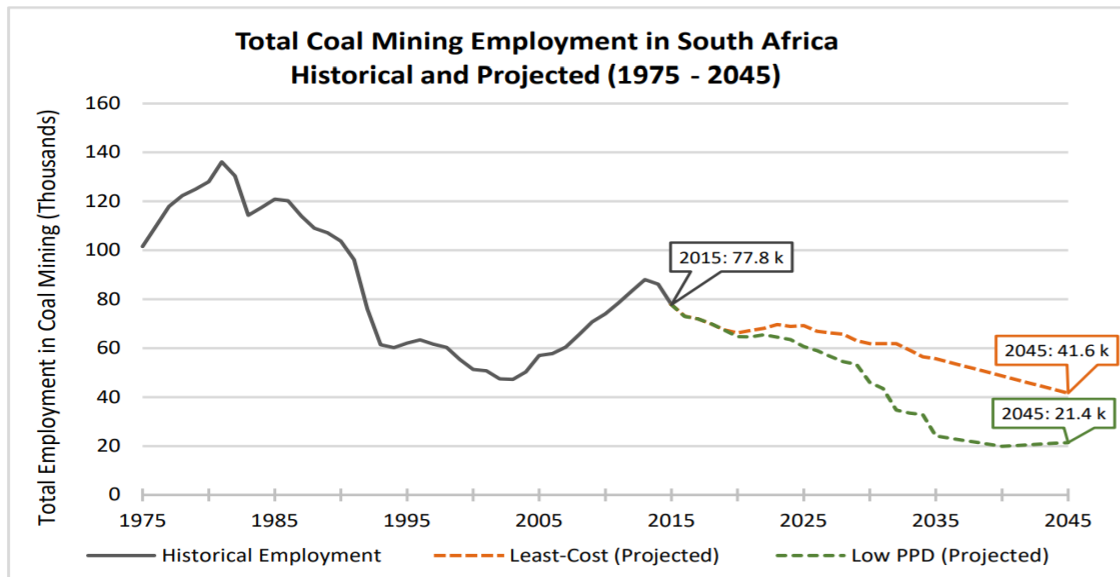
One of the major issues associated with the just transitions is the cost involved. Baran et al., (2020) argue that “cleaner technologies tend to be more expensive than the so-called dirty technologies”. Another cost that has not been considered is the cost associated with the structural reforms of the economies. One of the biggest challenges shown by a study in Poland suggests that “for coal-producing countries such as South Africa, the major friction that must be considered is the moving labour from mining to green or carbon-neutral sectors”, (Baran et al., 2020). The frictions can be derived from age, education, high salary expectations and stability.

It is assumed that a transition would create plenty of new jobs in green industries, although the probability of that happening is will depend on the likelihood of leaving the dirty sector

to find employment in another sector. The impact of the work move could be composed of occupations expansion in the green economy, work lessening in unbiased business and work lessening fossil fuel-based work. The first two effects are offset by each other if miners fail to shift, and the net effect is negative, regardless of the number of green workers, (Ligus, 2017). A partial positive effect could be achieved if green jobs in countries with high non-structural unemployment rates were partially filled by unemployed workers.

One main feature of the political, social and, economic aspects of South Africa is structural unemployment, which is believed to affect almost 36.7% of the citizens. Therefore, the employment and work are sensitive topics in South Africa, (Sartor, 2018). A just transition must consider the potential reduction in jobs particularly affecting coal workers and coal communities. For that reason, one single package of transition would not be the solution to the potential unemployment and local economic loss. A coal transition should entail development (job creation, beyond challenges associated with coal), (Baker, 2015).

Figure 2: **Historical (1970-2015) and projected (2016-2045) coal mining employment in South Africa**



Strambo et al., (2019)

The data shows that the number of workers in the coal mining peaked around the 1980s, whereas since then the number has been decreasing each year. The downward tendency is expected to continue due to automation and digitalization which have started their way to



the RSA economy. The projections from Strambo et al. (2019) expected the number to reduce in 2018. Although data suggests that not pretty much has been done for the change to be possible. In 2018, the coal mining employed nearly 86,619 employees, most of those working in the coal-fired power stations, (*The Coal Industry as an Employer - Coal Mining Matters*, 2018). Employment opportunities and local economic development will need consideration as coal production declines. It is also likely that substantial changes in the coal-based power sectors will have implications for South Africa's political scenario. To minimise the effects of coal-based mines Sartor (2018) and Green & Gambhir (2020) suggest two ways of promoting a just transition:

- i. A review of the Coal Transitions project, Sartor (2018) found that social dialogue is a crucial prerequisite for offering sufficient assistance to workers and communities in managing the change in a way that does not intensify existing socio-economic fragility. This dialogue can be possible by promoting active participation (bottom-up approach) of all stakeholders affected. The example of Germany shows that local governments, as mentioned by Oei et al., (2020) are in a much better position of understanding endogenous local potentials and enhancing public support for the transition.
- ii. An analysis of past coal transformations revealed that transitional assistance needs to consider both narrow and wide-ranging initiatives aimed at creating decent jobs for fossil fuel employees and broader economic development activities for coal regions, (Green & Gambhir, 2020). According to (Baran et al., 2020) initiatives such as a two year paid transition period, which aims to give time to coal miners to find new jobs or getting a training showed to be not effective in Poland, a study revealed that 30% - 40% of miners decided to take one-off compensation and remained unemployed. The transition must entail facilitation for new business development, and investments in infrastructures.

## **Conclusion**

In conclusion, the evidence suggests that a just transition needs active participation by all affected groups and bottom-up approach would be the most appropriate given that local authorities have a better understanding of the needs of the communities. Firstly, provided the high reliance of South Africa on fossil fuels and high rates of unemployment, structural changes (economic diversification) are needed to make the just transition possible. Within RSA, there is a considerable number of initiatives towards clean energy, although it is not certain their potential to create jobs. Secondly, lessons from Poland and Germany demonstrate that differentiated strategies are necessary given the context. Germany and Poland have benefited from incentives from the European Union which helped to fund the GHG reduction. Funding is required to fund a range of activities linked to a low carbon initiative. A low-carbon transition is an important subject, it is demonstrated by the number of actors involved. All actors (from top governments officials to miners) must have a common dialogue on what is important to make the transition possible and just for everyone. This is done through different arrangements through political, social and economic arrangements.

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