

Energy transition and climate change in South Africa: The impact and policies

Научный руководитель – Tshikovhi Ndivhuho

Cele Zamaswazi Pretty

Student (master)

Дурбанский технологический университет, Питермарицбург, Южно-Африканская
Республика

E-mail: zamaswazi.pc@gmail.com

Abstract

There is an urgent for energy transition and climate change in South Africa. Different challenges have been faced by the country in terms of the shortage of electricity. Strambo, Burton and Atteridge (2019) state that the public utility Eskom and chemical firm Sasol together account for more than 50% of South Africa's greenhouse gas emissions and 85% of the coal used in the local market by volume. This paper aims to analyse some of the challenges and impacts that have been faced by the country to implement the just transition. McCollum *et al.* (2018), the Paris Agreement makes clear that in order for the climate policies to work, they need to be clear and understood by everyone. Knowledge is needed in order to implement these changes, training is needed. Flavin (2008) explains that when one talks about renewable energy, one must include technology to be able to perform all these changes. The country needs to be ready for that shift and utilized technology to see reduce the CO₂ emission that is needed by 2030 (Huaman and Jun 2014).

The need to use clean energy and to transition to renewable energy has been known for a long time but South Africa own barriers when they wanted to adapt to the just transition these are the few barriers that occurred: it would have generated "inequalities relating to uneven spatial harms, subsidies for competing fuels; high initial capital costs; environmental issues associated with large hydro; the lack of a legal framework for Independent Power Producers (IPPs); utility interconnection requirements; liability insurance; lack of access to credit; technology performance uncertainty; and a lack of technical and commercial skills, and information" (Owen 2006).

Swilling, Musango and Wakeford (2016) state that these barriers are still regarded as the main issue in 2022 in South Africa. The main being the inequality and technology performance because the just transition state that it does not leave anyone behind. Harrahill and Douglas (2019) concurs that developing people and training them for the transition it crucial. To have a smooth transition it can not be listed under the barriers of the just transition. The lack of finance it was listed under the challenges that the country faces. The aim for the renewable energy is to create a better future that has efficiency technologies which allow developing countries to increase their reliance on indigenous resources and reduce their dependence on expensive and unstable imported fuels (Gielen *et al.* 2019).

Johnson *et al.* (2015), South Africa policy indicate that around 90% of its electricity come from coal power stations. The mining sector creates 15% of South Africa's greenhouse gas emissions and uses 48% of the nation's electricity. This policy has been the biggest factor of the just transition in South Africa and the World Energy Council conducted a study on South Africa and it concluded that the main energy challenge is to overcome supply shortages, while diversifying the energy mix. The electricity shortage which has become the biggest issue over the years and still unresolved (Cowan *et al.* 2014).

Mirzania, Balta-Ozkan and Marais (2020) explain that the just transition can be done, and they can be successful, in 2018 the new administration sign about 4 projects to test the

government's renewable energy programme which was called the REIPPP scheme. The result showed that South Africa has the perfect conditions to introduce a large quantity of variable renewables into the electricity system.

Conclusion

There are still challenges and concerns that needs to be resolved and address that makes the just transition to be questionable such as the technical, financial and legal limits of an energy system based on a networked grid. With the climate change that has been happening worldwide it clearly indicate that something needs to be done and soon. Adaptative is highly needed.