**[PAPER]**

**How are macroeconomic implications of the energy transition understood in South Africa? A systematic review**

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**ABSTRACT**

The 21st century represents a period where climate mitigation is essential for the survival and future of humankind and ecosystem (United Nations Framework Convention on Climate Change, 2016). Hence, it is no surprise that the global community is rigorously exploring fit-for-purpose sustainable transition pathways, and South Africa is no exception (The Presidency, 2022). A plethora of studies have argued for the need of an energy transition (Arndt, Davies, Gabriel, Makrelov, Merven, Salie & Thurlow, 2014; Arndt, Davies, Gabriel, Makrelov, Merven, Hartley & Thurlow, 2016; Hartley, Merven & Arndt, 2019; Merven, Hartley, Robinson & Arndt, 2020); however, the macroeconomic implications of the energy transition remain unspecified in South Africa. Based on this, the contribution of this paper is twofold, firstly, it aims to review literature on how the macroeconomic implications of the energy transition have been understood in South Africa. Secondly, find out what can be learnt from out-of-equilibrium models in understanding the macroeconomic and macro-financial impact of the energy transition. Through this analysis it becomes clear that the macroeconomic impact of the energy transition has not thoroughly been studied beyond the domestic economic output, sectoral employment, and investment. Furthermore, what emerges is that these macroeconomic variables are predominantly studied separately with no relationality to each other. In contrast, there are models such as GEMMES which are coupled with energy or climate models while retaining their ability combine dynamics of the real economy and its interaction with financial sector. As such, this paper concludes by summarising how GEMMES can be understood and applicable to the South Africa case.

**References**

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