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Delaying the just energy transition could prove costly – UCT economists

Recent research by economists at the University of Cape Town (UCT) suggests that delaying the just energy transition (JET) could be expensive, especially in light of evolving trade protocols that are increasingly calling for environmentally friendly alternatives, such as electric vehicles or green steel.

The paper, authored by Professor Haroon Bhorat, Dr François Steenkamp and their colleagues at UCT's Development Policy Research Unit (DPRU), provides a measure of how many jobs rely on the industry. It also examines potential transition strategies. Their paper is titled "How will the Just Energy Transition affect livelihoods in households dependent on the coal industry in South Africa?"

Climatic stabilisation, as mandated by the Paris Agreement, necessitates a transition away from fossil-fuel-based economic production and processes. In particular, the call to shift away from coal is crucial, given South Africa's substantial reliance on this energy source. The nation stands out as a larger CO2 emitter than the global average, with 86% of its primary energy supply and 85% of its CO2 emissions attributed to coal.

South Africa finds itself in the early stages of transitioning away from coal, but this is not devoid of socio-economic costs, as coal has a direct and indirect economic footprint. Coal is a relatively cheap energy source, accounting for USD 3.8 billion and 3.97% of total merchandise exports, and is a source of employment and livelihood for many South Africans.

The research contributes to the ongoing policy debate surrounding the JET in South Africa by carefully deriving a robust empirical estimate of the coal labour market in South Africa and the related coal-based electrical utility industry in Mpumalanga. The authors further provide measures of coal and electrical utility household dependency. These initial empirical insights into the size and shape of the coal labour market can inform the scale and scope of these policy interventions. Given the heterogeneous nature of the labour market, a diverse set of policy interventions is likely to be required.

"The shift from coal to renewable energy sources, while necessary, poses significant challenges," says DPRU's senior research officer Steenkamp. "The coal industry not only provides a substantial number of jobs but also contributes to other sectors such as transport, petrochemicals, and electricity production. The closure of coal mines and coal-

fired power plants will, therefore, have far-reaching implications, particularly in terms of employment and economic stability in coal-dependent regions."

In 2019, it was estimated that between 76 000 and 108 000 people were employed in the coal mining industry in South Africa, which accounted for about 0.5% of total employment in the country. Most of these jobs are in Mpumalanga, where the coal industry is a significant employer. Approximately 5% of the province's total employment is in the coal industry, with certain municipalities such as Emalahleni and Msukaligwa having much higher percentages.

The average coal worker is a Black African male, aged 25-44 years, with a relatively high level of education; 60-71% have at least completed secondary education. The industry is semi-skilled, with a significant portion of workers involved in craft and machine operation. Many workers in the industry enjoy relatively favourable employment conditions, including permanent contracts and benefits such as pensions and medical aid.

There are approximately 46 100 coal households in Mpumalanga, with many being highly dependent on the coal industry for income, according to Steenkamp. "The study highlights that 58.9% of these households rely on a single coal worker's income, making them particularly vulnerable to the effects of the transition. Additionally, a significant portion of these households has one or more dependents, further exacerbating their vulnerability," he says.

Steenkamp adds: "The electrical utility industry, which is also linked to coal through coal-fired power plants, employed about 30 481 people in Mpumalanga in 2019. Workers in this industry share similar demographics with coal workers and also enjoy relatively favourable job conditions. Like coal households, many utility industry households are also vulnerable to the transition, particularly those that rely solely on income from this sector."

The JET presents a complex challenge in terms of labour market transitions. The research identifies three main groups within the coal and utility industries, based on their likelihood of successfully transitioning to alternative employment:

- **High-Skilled Group**: This group, comprising 29.28% of the workforce, consists of workers with post-secondary education in high- or semi-skilled occupations. These workers will likely find alternative employment opportunities, making them less of a concern in the transition.
- **Intermediate-Skilled Group**: Representing 62.82% of the workforce, this group comprises workers with a complete secondary education in high- or semi-skilled occupations. The future of this group is uncertain, as some may require additional skills training to transition successfully, while others may need government intervention to secure green jobs.
- **Low-Skilled Group**: The most vulnerable group, comprising 7.9% of the workforce, includes workers in low-skill occupations who are unlikely to find alternative employment easily. Social protection measures, such as income support, will be essential for these workers.

"Additionally, a significant portion of the workforce, particularly those aged 45-64, will likely retire within the next decade. This group will require tailored early retirement packages as part of the transition strategy," notes Steenkamp.

He further says: "It is important to acknowledge the diversity of the workforce. A single approach will not be suitable for everyone. Policymakers will need to implement a range of

interventions to address the different needs of various worker groups. These interventions could include skills development programmes, social protection measures, and economic diversification strategies. This will help to lessen the impact of the transition on vulnerable households and regions."

Steenkamp says while the transition away from coal is necessary for South Africa's environmental and economic future, it must be managed carefully to ensure that the livelihoods of those dependent on the coal industry are not unduly compromised. "The insights provided by this study can help shape the policies needed to achieve a just and equitable transition."

Note: This media release is based on a non-technical summary version of the author's study on Econ3x3.

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