

## South Africa's Draft Integrated Resource Plan Undermines its Climate Ambitions

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South Africa's renewable energy transition has been a bumpy and unpredictable one where policies and actions often appear misaligned. The government has recognised the need to decarbonise the economy and set a target to reach net zero by 2050<sup>1</sup>. In 2021, it significantly increased the ambition of its Nationally Determined Contribution under the Paris Agreement and set a goal to limit GHG emissions by between 398 and 510 Mt CO<sup>2</sup> equivalent (CO<sup>2</sup>-eq) in 2025, and between 350 and 420 Mt CO<sup>2</sup>-eq in 2030<sup>2</sup>. At the same time, progress on achieving the decarbonisation of the country's energy sector, which relies on coal for 77% of the installed power generation capacity, has been sluggish<sup>3</sup>. Despite its ambitions, the current policies and targets are considered highly insufficient to meet the goals of the Paris Agreement and would be consistent with over 3°C warming if all other countries followed a similar level of ambition<sup>4</sup>. The most commonly cited barrier is a lack of political commitment, in part stemming from vested interests in the coal sector, which has acted as an overarching obstacle to the transition away from coal. The lack of an ambitious and consistent policy commitment to renewable energy has created market uncertainty and slowed investment in the renewable energy sector<sup>5</sup>.

A recent materialisation of South Africa's slow-footed energy transition is the [draft 2023 Integrated Resource Plan](#) which was released for public comment in January 2024. The draft IRP, developed by the Department of Mineral Resources and Energy (DMRE), is a living document that intends to serve as a blueprint for meeting the country's energy demand until 2050. It looks at energy supply and demand scenarios for two time horizons. The analysis of Horizon One, from 2023-2030, focuses on options for

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<sup>1</sup> UNFCC. (2020). *South Africa's Low Emission Development Strategy 2050*. <https://unfccc.int/documents/253724>

<sup>2</sup> UNFCC. (2021). *South Africa's First Nationally Determined Contribution Under the Paris Agreement: Updated September 2021*. <https://unfccc.int/sites/default/files/NDC/2022-06/South%20Africa%20Updated%20first%20NDC%20September%202021.pdf>

<sup>3</sup> International Energy Agency. (2023). *South Africa Data Explorer*. IEA. <https://www.iea.org/countries/south-africa>

<sup>4</sup> Climate Action Tracker. 2023. *South Africa*. <https://climateactiontracker.org/countries/south-africa/>

<sup>5</sup> Renaud, C., Tyler, E., & Roff, A., & Dr Steyn, G. (2020). *Accelerating renewable energy industrialisation in South Africa: What's stopping us?* Meridian Economics. <https://meridianeconomics.co.za/wp-content/uploads/2020/07/Accelerating-renewable-energy-industrialisation-in-South-Africa-July2020.pdf>

remedying the electricity supply shortage stemming from capacity constraints. The analysis of Horizon Two (2031-2050) primarily looks at different options for the country's long-term energy pathway.

Some elements of the document are prudent, notably the emphasis on the need to invest in grid infrastructure. However, much of it is highly questionable and directly opposes South Africa's climate mitigation ambitions. The 'Emerging Plan' from the various scenarios modelled in the Horizon One analysis scales back ambitions on renewable energy in comparison to the 2019 IRP. The draft IRP allocation for renewables until 2030 (1500 GW of new solar and 3000 GW of wind) would see renewables accounting for 22% of South Africa's energy mix by 2030. This is significantly lower than the 2019 IRP allocation, which would have seen renewables account for 33% of the energy mix by 2030<sup>6</sup>. While the emerging plan envisions a smaller than expected role for renewables, it calls for a significant contribution (7220 MW) from gas-fired power generation. A number of experts have strongly opposed the large scale investments in a gas-to-power sector on the grounds that it will lock the country into an unsustainable and uneconomic energy pathway and divert funds from cleaner energy sources<sup>7</sup>.

This emerging plan also includes projections that load shedding will continue until 2028. While technical scrutiny of these findings is necessary, it will be challenging. The IRP has been [criticised by experts](#) for lacking the technical detail and for opacity around critical assumptions embedded in the utilised models. What is known is that the emerging plan is a lot less promising than the findings of other [more robust reports](#) which have shown that there are viable strategies for ending load shedding which rely on a renewable-heavy approach, minimal procurement of new gas, and the early retirement of coal-fired power stations.

The suggested interventions based on the Horizon One analysis propose that in order to address the unserved energy risk, "where technically and commercially feasible, [Eskom should] delay shutting down coal-fired power plants to retain dispatchable capacity"<sup>8</sup>. The modelled scenario underpinning this suggestion would see the shutdown of five coal-fired power stations, with a total generation capacity of 15 000 MW that were due to retire after 2035 being delayed by 10 years. While a technical analysis on the implications of this needs to be completed, this proposal will likely make achieving South

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<sup>6</sup> Hedley, N. (2024). *South African ministry uses opaque modelling to argue for weakening climate ambition* <https://www.climatechangenews.com/2024/01/08/south-african-ministry-uses-opaque-modelling-to-argue-for-weakening-climate-ambition/>

<sup>7</sup> See Meridian Economics. (2022). *Hot Air About Gas*. <https://meridianeconomics.co.za/wp-content/uploads/2022/06/Hot-Air-About-Gas.pdf>; IISD. (2022). *Exploring the Case for Gas Fired Power in South Africa*. <https://www.iisd.org/system/files/2022-03/south-africa-no-need-for-gas.pdf>

<sup>8</sup> Department of Mineral Resources and Energy (South Africa). (2023). *Publication for Comments: Integrated Resource Plan, 2023* (Gazette NO. 4238).

Africa's commitments under the Paris Agreement more difficult and costly. Research has found that for South Africa to achieve the lower bound of its NDC, 350 MtCO<sub>2</sub>, earlier plant retirement than that contained in the 2019 IRP schedule would be required. This implies that the original shut-down schedule was already insufficient for meeting the lower bound of our NDC and thus the delayed schedule will certainly be insufficient<sup>9</sup>.

The IRP also promotes investments [in controversial 'clean coal' technologies](#) and categorises Minimum Emissions Standards, which control Eskom's dangerous levels of air pollution, as a 'risk' that must be managed. Eskom is in breach of Minimum Emissions Standards but has been granted exemptions from compliance until 2025. The document states that "[a] balance will have to be found between energy security, the adverse health impacts of poor air quality, and the economic cost associated with these plants shutting down". A recent study by the Centre for Environmental Rights (CER) estimated that air pollution caused by Eskom's coal-fired power stations leads to an estimated 2,200 deaths annually<sup>10</sup>.

While the coal value chain is an important source of jobs in the country, and mitigation measures of the socioeconomic impacts of a renewable energy transition are imperative, South Africa's coal dependence and resulting emissions-intensive economy has consequences. With the introduction of policy instruments like the European Union's Carbon Border Adjustment Mechanism (CBAM), seeking to curb the import of emissions-intensive goods, the competitiveness of South Africa's exports in the large European market will come under threat. The updated IRP also seems to stand in contrast to the goals of the Just Energy Transition Partnership that South Africa formed with a group of OECD countries. It could undermine South Africa's efforts to secure much-needed additional funding under the initiative, the primary objective of which was to accelerate the retirement of South Africa's coal-fired power stations<sup>11</sup>.

The 'takeaways' of the draft IRP indicate a concerning willingness by the DMRE to continue down the path of South Africa's coal dependency, rather than taking bold action to promote the transition to a cleaner energy mix and pursue what has been shown to be a viable and least-cost energy pathway. If

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<sup>9</sup> Tyler, E. & Steyn, G. (2021). *What Does South Africa's Updated Nationally Determined Contribution Imply for its Coal Fleet?* [https://meridianeconomics.co.za/wp-content/uploads/2021/09/Briefing-Note-No.-2021\\_10\\_2021-09-28\\_Implications-of-the-updated-SA-NDC-for-the-power-sector-Final.pdf](https://meridianeconomics.co.za/wp-content/uploads/2021/09/Briefing-Note-No.-2021_10_2021-09-28_Implications-of-the-updated-SA-NDC-for-the-power-sector-Final.pdf)

<sup>10</sup> Myllyvirta, L., Kelly, J., & Tattari, V. (2023). *Health impacts of delaying coal power plant decommissioning in South Africa*. CREA. <https://energyandcleanair.org/publication/health-impacts-of-delaying-coal-power-plant-decommissioning-in-south-africa/>

<sup>11</sup> Climate Commission. (2023). *South Africa's Just Energy Transition Investment Plan*. <https://www.climatecommission.org.za/south-africas-jet-ip>

South Africa's energy system is to achieve the socio-technical transition it requires, a coherent and ambitious policy commitment to the phasing out of coal and rollout of renewable energy is necessary.

The draft IRP is open for public comment until 23 February 2024. There are a number of elements which interested parties should challenge:

- a) The costing estimates that were used for modelling the various scenarios which led to the questionable conclusion that “energy pathways based on renewable and clean energy technologies only deliver the desired outcome insofar as decarbonising the power system. However, these pathways do not provide security of supply while carrying the highest cost to implement.” The assigned costs per technology evidently constrained the role of renewables in the final technology allocation.
- b) The large capacity allocation of gas
- c) The revised shut-down schedules of coal-fired power station which would require large investments for compliance with Minimum Emissions Standards

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