

Gas, nuclear and renewables: Plans to breach energy poverty in South Africa

“[The] reality of the matter is that climate change and energy security are two sides of the same coin. As we transition from high to low carbon emissions, we must ensure that we address energy poverty, ensure energy security and leave no one behind.”

These were some of the opening remarks made by the Minister of Mineral Resources and Energy Gwede Mantashe of South Africa on 5 March 2024 at an event held in Cape Town.

Mantashe began by providing an update on the energy procured and projects in progress since the launch of the IPP (Independent Power Producer) Programme. He said the capacity will add up to 7,327MW, including the 5,939MW already procured from 46 IPPs.

He also noted that further Requests for Proposals have been issued for 5,000MW of renewable energy under bid window 7; 2,000MW of gas-to-power under bid window 1; and 615MW of battery energy storage under bid window 2.

Despite these wins, Mantashe was sure to highlight the challenges that stand in the way of South Africa’s progress towards [energy security](#). Among these are limited grid capacity, the intermittent nature of renewable energy and the decline in Energy Availability Factor (EAF) due to ageing infrastructure.

“Hence, the South African government continues to invest efforts and resources to arrest the decline in the EAF and resolve the grid capacity challenges, while on the other hand, it continues to invest in baseload energy sources to guarantee access to affordable and reliable energy supply for the people of [South Africa](#).”

Key findings

Report into Eskom coal fleet: Fixation on EAF is a dead-end

The role of coal becomes clear for South Africa

In its efforts to leverage energy technologies to achieve a reliable energy supply, Mantashe also said that [coal](#) will continue to present itself as a strategic mineral and important asset of South Africa’s baseload power.

However, the minister is confident that clean coal technologies can also be used to transition justly and cost-competitively to a low carbon dioxide economic development trajectory.

As such, the Council for Geoscience (CGS) has been appointed as an implementing agent for implementing the Carbon Capture, Utilisation and Storage (CCUS) project in Leandra, Mpumalanga Province, of which phase 1 is nearing completion.

He said the application of these new technologies will “ensure that we continue to leverage the abundance of coal that can catapult development when used responsibly.”

Ensuring a stable gas supply through partnerships

In 2022, the EU declared both nuclear and gas sustainable and part of transitional activities. To that end, it is “crucial for African nations to invest in [gas](#) infrastructure, including expansion of pipelines.”

Still, Mantashe highlighted ongoing concerns regarding the current and future gas supply in the South African market due to commercial disputes between Sasol and its customers in relation to a suspected decline in gas flow.

As such, the ministry, in partnership with the Department of Trade, Industry and Competition, has established a task team to address subsequent issues resulting from this incident while the Department of Mineral Resources and Energy (DMRE) works on the country's Gas Master Plan – intended to be presented to cabinet this month (March 2024).

The DMRE is also readying to sign a memorandum of understanding (MoU) to partner and trade electrons and gas molecules with the Mozambican government. The Department has also signed an agreement for gas sales with Mozambican company Empresa Nacional de Hidrocarbonetos to deliver up to 200 peta joules of natural gas.

“Gas-to-power is a critical component of Africa's energy transition. Given the increase in global LNG demand and supply, it is critical for the Southern African Development Community (SADC) to invest in the development of the upstream petroleum industry and place itself as a key player in the supply of these critical resources.”

Not neglecting nuclear

Given that the continent of Africa is also blessed with an abundance of natural resources and minerals, significant quantities of which Mantashe noted will be needed for the [just energy transition](#).

Mantashe therefore pointed to uranium as one such mineral. It can be used in various nuclear applications including the generation of clean baseload energy, and nuclear research reactors for medical purposes.

The DMRE has, as such, initiated a procurement process to acquire 2,500MW of nuclear energy capacity following NERSA's concurrence to the ministerial determination for the procurement of this capacity, and the subsequent gazetting of the determination.

“At a global stage, small modular reactors are increasingly considered a game changer due to their potential to guarantee reliable, clean and affordable energy.”

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