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ESG & Energy Transition in the Mining Sector

With the election of a more climate-focused administration in the United States and the European Union (EU) honing in on the mining industry to reduce their carbon emissions, the South African government and mining industry must work together to effect the transition to a lower carbon future.



The ability of the South African mining sector to transition to lower carbon power sources will determine its future success in a world where regulators are increasingly looking to achieve climate neutrality.

Government needs to cut the red tape to enable the South African mining sector to transition to lower carbon power sources

Mining is one of the most energy intensive industries in the world, responsible for up to 7% of global Green House Gas emissions, making it a target for global policymakers increasingly focused on regulating companies' carbon neutrality and Environmental Social and Governance (ESG) performance.

With the local mining sector relying on coal-fuelled power supplied by Eskom, South Africa has been particularly slow in achieving emission reductions. Furthermore, current regulations and red tape continue to thwart progress on energy transition for the mining sector.

“The reduction of emissions needs to change if our country’s mining sector is to grow sustainably in future.”

R226bn

The South African mining sector contributed R226 billion to GDP in 2019 and was a key contributor to the country's employment and public finances.

“With some of the world's largest Platinum Group Metal (PGM) reserves, our mining industry is likely to have an important role to play in the world's energy future, as demand for these metals in battery components and platinum-based fuel cells continues to grow.”

In October 2020, the Department of Mineral Resources and Energy (DMRE) and National Energy Regulator of South Africa (NERSA) confirmed that all grid-connected, on-site consumption self-generation projects above 1MW had been granted approval for deviation from the Integrated Resource Plan.

However, the licensing process for these projects is still not working quickly enough (only five licenses for projects above 1MW have been approved by NERSA since 2016) and the regulatory framework lags behind other countries.

To improve the regulatory process in South Africa and increase the uptake of on-site, lower carbon power generation in the mining sector, government can take some key actions.

Key actions

- Lifting the current licence-exemption threshold for all other grid-connected projects from 1MW to at least 50MW would be a good first step. For example, India recently delicensed all generation projects (except for large hydro and nuclear projects), provided they comply with technical standards. The UK has exempted all projects with capacity up to 50MW from licensing, with projects up to 100MW considered for exemption on a case-by-case basis.
- Our government could also simplify the registration of license-exempt projects (including those under the proposed 50MW threshold), while still ensuring they have the required environmental approvals, grid-access approvals and do not risk grid stability.

Creating an online process or “one-stop shop” for the submission of relevant documents and approvals for generation licence applications for all projects greater than 50MW would also lessen the administrative bottlenecks resulting from the current paper-based system.

- Revising the definition of generation for ‘own use’ as any project where the off-taker has an equity stake in the generation facility and exempting these projects from market-access licensing, regardless of grid-connection and of size would also assist mining companies to fulfil their carbon reducing commitments.
- Finally, exempting battery storage projects from market-access registration or licensing, would recognise that this technology provides grid services rather than generation capacity.

Of course, mining companies can also make a significant contribution to the energy transition outside of shifting to power generated from low carbon sources. Using lower emission vehicles in operations, for example, and improving the energy efficiency of their operations.



For example, Anglo American has partnered with ENGIE to develop and fuel the world's largest hydrogen-powered, zero-emission mine haul truck. The first of the 40 truck fleet is expected to be implemented at the Mogalakwena PGM mine in Limpopo in the first half of 2021 and could run on “green hydrogen” in the future to further reduce emissions.

“South African PGM mines and their associated smelting and refining processes currently use around 5000 GWh of Eskom (majority coal-fired) power per year, so any reductions would have a significant impact on both emissions and the load on Eskom's constrained electricity capacity.”



Some of the most exciting gains being seen in the industry are from the ultra-low energy Kell technology. This is a hydrometallurgical PGM extraction technology which replaces expensive, electrically-powered smelting.

18%

The process uses only 18% of the power of conventional PGM smelting processes, also reducing the associated carbon and sulphur dioxide emissions and lowering mine operating costs.

Sedibelo Platinum Mines have developed the technology over the last decade and its first commercial rollout is planned to begin at the company's Pilanesberg platinum mine in South Africa in 2021.

In future, this technology could also use on-site renewable energy as its power source for optimum decarbonisation.

Conclusion

Overall, while mining is still an extremely energy intensive industry, there are a number of developments now occurring across on-site renewable energy generation, on-site vehicles and energy efficiency in the sector that could move it to the forefront of energy transition.

“If implemented concurrently – for example, on-site renewable energy powering green hydrogen electrolysis for on-site vehicles and low energy extraction processes – these developments could be a real game changer for energy transition in the sector, positioning it amongst international investors focused not only on the bottom line, but on ESG factors too.”

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