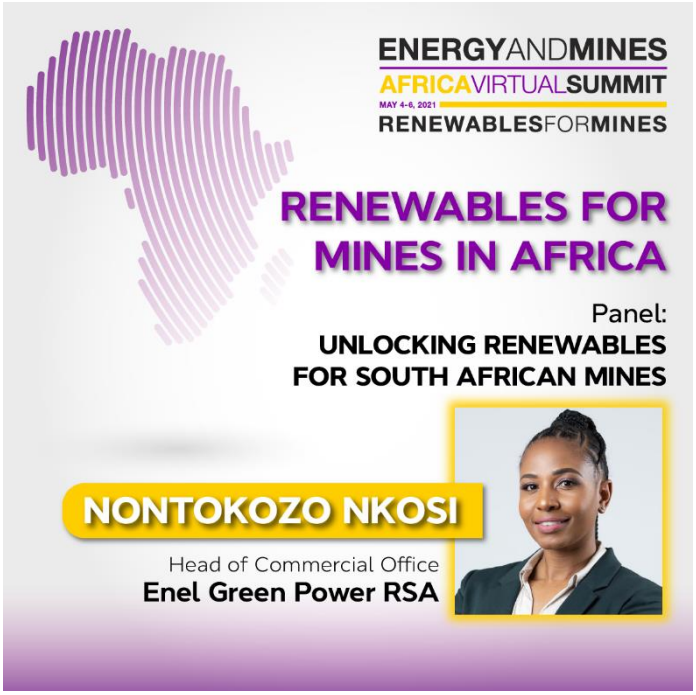
Renewables for mines in Africa:

The speech given at the event by Nontokozo Nkosi, Head of the Commercial Office at Enel Green Power South Africa



South African mining companies and energy-intensive industries have long been contemplating renewable energy as a means of addressing the Electricity Commission (ESKOM)'s rising electricity tariffs and grid capacity constraints. With the economics now making sense and the market opening up for captive PPAs, they're ready to move forward with sizable projects. And I'd like to talk about them by answering two key questions:

First, what are the main technical challenges when it comes to incorporating renewables for these sites?

When we consider onsite or behind-the-meter renewable energy solutions, there are several technical challenges that mines face in incorporating them in their sites. These can include – but are by no means limited to – factors such as actual mine location. Mines aren't necessarily situated in the best energy resource areas for photovoltaic or wind technologies, and this may limit the type of renewable technology that can be implemented. In addition to this, renewable energy project size may be limited by land availability and site conditions.

Balancing capacity/renewable energy project size in order to maximize the mines' consumption from renewable energy projects can also be a challenge. Higher capacity (in MWac) of the renewable energy project increases the coverage of the mine's consumption profile, but it can also increase the risk of excess energy which may not be remunerated if the contract between the Independent Power Producer IPP (generator) and the mine (off-taker) is not a take-or-pay contract. With zero or constrained access to the grid and limited opportunities to sell back into it, this could result in the mine deploying a smaller-sized renewable energy project to minimize this risk. Though the integration of a Battery Energy Storage Solution (BESS) may be used to optimize generation profile and maximize supply on the technical side, with limited remuneration allowed for BESS, this could impact the overall competitiveness of the project.

Securing finance is critical with most large-scale projects being paid for on a non-recourse basis. Non-recourse finance is a type of commercial lending that entitles the lender to repayment only from the profits of the project the loan is funding and not from any of the borrower's other assets. Over the years, we've seen massive technological advancements in renewable energy, but proven technology is still critical to securing project finance.

The technical challenges faced by mines are industrial, and the question should be: Who is best suited to manage these risks? As an integrated IPP with a proven track record in developing, designing, building and operating generation plants, EGP is well positioned for developing tailor-made projects and solutions to give companies the best renewable energy supply solutions possible through our Power Purchase Agreement (PPA) offering.

Second, what market developments are expected to support and further facilitate self-generation?

The South African National Development Plan 2030 envisages the decommissioning of 35 GW (out of 42 GW currently operating) of coal-fired power capacity. It also envisages supplying at least 20 GW of the additional 29 GW of electricity needed by 2030 from renewables and natural gas. According to the Integrated Resource Plan (IRP) 2019, 6 GW of new solar PV capacity and 14 GW of new wind power capacity will be commissioned by 2030. These volumes of renewable generation need to be integrated into the power system by implementing adequate actions aimed at ensuring security, reliability and opening the electricity market.

Some of the expected market developments include the key topic of the Unbundling of ESKOM. This is a gradual process which needs to be planned over time. The RES4Africa Foundation (of which EGP is a founding member) recently produced a study entitled "Fostering Renewables within an Independent Network System scenario for South Africa." There was an accompanying event which saw over 300 participants and presentations from key players including ESKOM's head of transmission. The study drew upon international case studies to define a set of parameters which ESKOM and the National Energy Regulator of South Africa (NERSA) must take into consideration when implementing the unbundling roadmap. The target has been officially set for the end of 2021. RES4Africa is also developing a new initiative to increase the competitiveness of – and private participation in – grid networks in Africa to upgrade, expand and develop them and increase access to reliable and affordable electricity across the continent.

Furthermore, during a recent address, the South African president announced the amendment of schedule 2 of the Electricity Regulation Act to increase the NERSA licensing threshold for embedded generation projects from 1 MW to 100 MW.

We now eagerly wait for the Department of Minerals and Energy (DMRE) to provide the amendment to Schedule 2 Electricity Regulation Act. The amendment of the licensing threshold is a surprising move that is welcomed by the industry at large. With fewer barriers to entry, there is an opportunity to build RE capacity that will alleviate the pressure on the state utility and, at the same time, provide large users with the much-needed security of supply.