



Microgrids for Mines: Establishing Solutions for African Operations

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Grant Pattison, Chairman and CEO at NRG Renew Africa Pty Ltd., offers a comprehensive overview of the outlook for renewable energy solutions at mines throughout Africa. He discusses new technologies and how they might make solar, wind and other alternative energy solutions more enticing for African mining companies going forward.

🗣️ How would you describe the current opportunities for renewables for both off-grid and grid-tied mines across Africa?

Africa is large, and the electricity grids in each country behave differently. In the countries that have grid connections, they have the opportunity to meet their renewable responsibilities, which most global mining companies have in terms of preparing for carbon credits. For off-grid companies, renewables provide two opportunities by reducing diesel-generated costs for running their plants and gaining environmental protection credits.

🗣️ What do you see as the main drivers for new energy options for mines here? How can renewables deliver what mines are looking for?

Ⓐ Typically, new African mines are off-grid. The primary driver for renewables is reduced diesel costs,

which creates a desire for renewable power. I'd say that for more than 80 percent of African countries the mines are eventually going to run off-grid.

🗣️ Can you share current examples of projects NRG has developed that could offer the mining sector insight on the applications and potential for new energy options?

Ⓐ Microgrids employ various renewable solutions based on the required needs of a given industrial complex, neighborhood community or, in the case of Necker Island, an entire island. On Necker Island, NRG is deploying the first microgrid solution in the Caribbean. As part of creating an unparalleled guest experience, Virgin Limited has committed to transforming Necker into one of the world's most energy efficient islands. This renewables-led microgrid, which integrates solar, wind and battery storage via a unique energy management system, works like a large autonomous grid and reduces diesel consumption by at least 75 percent with no loss of quality or reliability.

🗣️ One of the key barriers for renewable energy projects is financing. Do you have some ideas on how to address this hurdle?

Ⓐ Capital equipment costs and charges associated



Grant Pattison
Chairman and CEO
NRG Renew Africa Pty Ltd.



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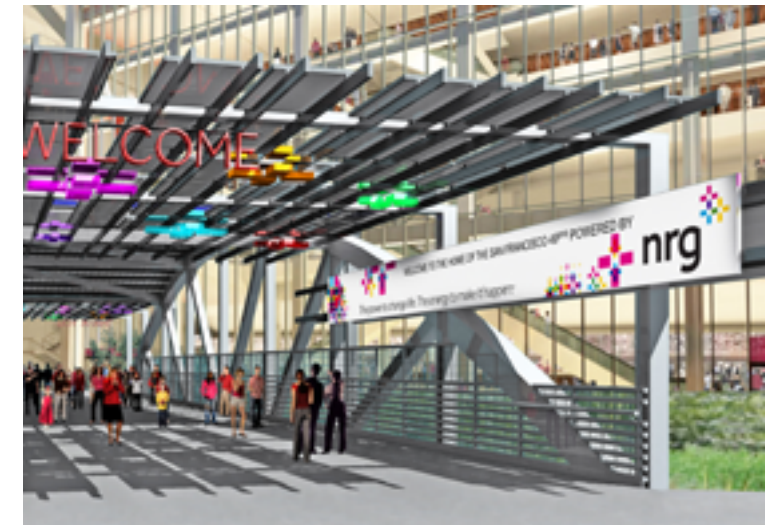
with running the power station have been well established. The financing components and the economics of a particular mine are more complex. To establish a financing model, an energy company needs to have a keen understanding of those variables as well as the type of ore that mine is extracting and how long that reserve will last. NRG Renew Africa is able to provide unique financing solutions by leveraging our diverse asset base, which enables us to create unique financial products.

Q How do you see the partnership between mining and renewables evolving in the African market?

A When a company partners with NRG, we would be responsible for building, developing, owning and managing the power plant and then selling the electricity for the life of the mine. What we've heard from mining companies is that they would prefer to concentrate on what they do best, which is the mining aspects, and leave the power generation to an energy company that has expertise in developing power plants. Once a mining company selects NRG Renew Africa as their trusted energy partner, we can begin the process of evaluating the needs of the mine and the financial aspects to develop a renewable solution that benefits all parties.

Q How are you customizing your solutions to fit with the needs of mines in Africa?

A A unique aspect of NRG is that we're technology agnostic. We're not bound by any specific solar, wind or battery manufacturer. We look at every project and pair the best set of energy solutions for a given partner. We'll look at the supply chain, costs and the presence of local manufacturing in that factory as well as the performance characteristics of that particular environment. In North America, we treat every power



generation facility as a unique project developed specifically for the needs of that plant and partner to be the most cost efficient.

Q What are you looking forward to at the Renewables and Mining Summit & Exhibition in Johannesburg on July 1-2?

A The South African renewables market is only about ten years old, but it's really gained momentum in the last five years. What's changing quickly is the technology that's become available and the renewable energy environment in which we operate.

We want to learn about some of the new technologies and products available to potentially include in our future designs. We also want to gain a better understanding of how the South African and other governments plan on implementing metering and wheeling and how energy procurement programs will be altered going forward given the current constraints within Africa's energy system.