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**Introducing ‘climate-smart’ mining on the road to Industry 4.0**

**By Eduardo Aparicio, ABB Motion**

Reducing our carbon footprint to mitigate the impact of climate change, as outlined in international treaties like the Paris Agreement, and accelerating the journey to the all-electric mine, is a business priority for many mining companies and their customers. This is an important focus in South Africa, where mining continues to be a mainstay of the economy and a major employer.

There are three major trends fundamentally transforming the mining industry into what can be termed ‘climate-smart’ mining. Firstly, there is the shift from diesel to electrification as a main power source. Secondly, digitalisation not only increases productivity, but allows for ease of maintenance. Thirdly, customers can reduce their total cost of ownership by standardising on high-efficiency motors and drives. This means that assets are deployed optimally in a sustainable manner that reduces the overall environmental impact.

Of course, it is not exactly certain how all of these trends are likely to play out over the next five to 15 years. What we do know, however, is that the future is invariably shaped by the innovations of today, which are transformed into the advances of tomorrow. Every company that operates in or serves the mining sector can participate in shaping this future – and can begin to have an immediate impact. Let us all join forces as we co-develop and collaborate to set these new ‘smart’ standards for mining.

The switch to remote services accelerated in 2020 due to the Covid-19 pandemic. This also resulted in a more rapid uptake of Industry 4.0 solutions in the mining industry in terms of automating operations for optimised productivity, reducing equipment downtime and costs, carrying out predictive rather than preventative maintenance and enhancing safety for mine personnel so as to introduce a ‘zero harm’ culture.

Connected mines will result in a wealth of digitalised data from equipment, assets and applications. By the time this data reaches operators, it will already have been analysed, and can be accessed easily and interacted with on any number of smart devices. Such a connected process results in rapid, smart and informed decision-making that will have a major impact on the bottom line.

Mining is one of the key industries where our drives, motors, generators, mechanical power transmission products and integrated digital powertrain solutions stand to play a major role in ushering in this new connected era. It is an example of the leading role we as a global innovator play in transforming both society and industry to achieve a more productive and sustainable future for all. Therefore, I am very excited to join ABB Southern Africa as Local Business Area Manager in its Motion business unit. This means I get to be part of the South African mining industry’s incredible ongoing transformation.

Assisting major South African industries such as mining to adopt the latest technology on the country’s path towards energy efficiency, reduced emissions and, ultimately, carbon neutrality is my main goal in my new position. This has been an important focus for me throughout my career in Spain and Mexico. As we all know, South Africa faces power constraints, coupled with lagging economic growth and development. Here I also see electrification and automation and power and water as critical business development areas for us as a business.

In Mexico, for example, a career highlight for me was overseeing the establishment of a new Energy business unit that merged Power and Water to focus on the Oil and Gas industry. This is a sector where we enjoy a global footprint, with clients as far afield as Europe and the US. It is a burgeoning sector in Africa, especially with the latest oil and gas discoveries, presenting tremendous opportunities throughout the continent.

As a business, we succeed by adding value, which is a combination of our innovation, expertise and experience. Dealing with customer requirements is much more than offering technical solutions, but depends on understanding a customer’s business and how best to optimise it. Our customers are our true assets, because if we help them to succeed, then we succeed in turn. But it goes even further, as we have both a commitment and a drive to make the South African mining industry succeed and benchmark itself against the best in the world.

With South Africa contributing the bulk of our revenue on the continent, my plan is to maintain this strong foothold, while continuing to expand into the rest of the continent, where mining especially is an important driver for growth and socioeconomic development. The mining industry has always demanded the latest technology, and our solutions have been tried-and-tested in major markets such as North America and Europe.

As our recent White Paper entitled ‘Achieving the Paris Agreement: The vital role of high-efficiency motors and drives in reducing energy consumption’ states, the technology to dramatically improve energy efficiency is available right now. For example, high-efficiency motors and drives are well established and time-tested. I aim to increase the uptake of such technology especially in mining, as well as to educate the market about the importance of our long-term sustainability goals as a future-orientated business.

Of course, the benefits of greater energy efficiency go well beyond the fight against climate change. They contribute broadly to environmental conservation, cleaner air and water, better public health, energy independence and stronger economic growth and development. Nowhere is this more critically important than in the South African mining industry, which is taking significant strides towards a ‘climate-smart’ future.

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