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Renewables require innovation and change of mining industry mindset

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TORONTO (miningweekly.com) – The future success of renewables in the mining sector will require companies to overhaul the way they think about energy and mine development, according to professional services firm Deloitte.

“When we look at mining, innovation and competitiveness, we don’t often put those things together,” said Deloitte associate partner **Adriaan Davidse**, addressing an audience at a recent Canadian German Chamber of Industry and Commerce renewables in mining conference.

Davidse highlighted innovation as an important value driver, as it helps attract capital and deliver alternative or new profit streams for many mining companies. Renewables played an important part within this, he said.

“You can create a completely different competitive advantage if you start thinking about integrating renewables at the start of project design and by beginning to change the entire system."

THINK BIG

Davidse noted that renewables innovation did not mean ripping up the rule book simply for the sake of doing so; it meant having the willingness to find untapped solutions or methods to create value for both the company and its shareholders. “We have a slogan: ‘Think big, test small and scale fast',’” he said.

Work with renewables also enhanced management and workforce expertise, which was set to become increasingly important in the future. Those who explored renewables today also accrued first-mover advantages against companies behind the development curve.

However, Davidse conceded that current economic headwinds had weighed down the uptake of

renewables. The slide in commodities prices and the pressure this placed on several companies made many in management wary of large capital investments, which renewables represented.

“But you could get overwhelmed by pessimism if you focus solely on what’s going on now,” Davidse cautioned. “The world’s need for resources continues and the cycle will change. The companies that survive and prosper will be the ones that use innovation.”

Renewables integration at existing mine sites had more constraints because it was harder to seamlessly install or retrofit new components or systems. Projects still in the planning stages had the advantage of renewables being tailor-designed for installation from the outset.

Davidse noted, however, that beyond simply identifying the potential for renewables, companies needed to think about the extent of renewables penetration. Again, that was trickier for operations already on stream, as systems and working practises had to be adapted accordingly.

The parts of the mining chain that required the greatest levels of expenditure were good places to start in the hunt for value with renewables. Each constituent part of a mining operation or procedure needed to be examined through the prism of how much time and money it required.

“Look at it in terms of competitiveness and that’s when you can create value in different ways – and we’d certainly include energy in that,” Davidse said.

CUT THE COST

Companies able to become “pre-adaptive” in this fashion would have greater certainty that maximum value had been secured in their exploration of renewable options. Meanwhile, any complexities revealed by that process might not be the hurdles management once thought they were.

Davidse highlighted that difficulties were often overcome by using the latest modelling technology. This enabled companies to alter variables through artificial intelligence and to assess the effects of integration.

In addition, the declining price of renewables and storage solutions could also be programmed with higher accuracy, affording management an opportunity to forward-plan renewables costs with much greater certainty.

“We now have fantastic tools to model and visualise things in real time. Or we can play out more than 20 years of an operation in front of people. We can also use modelling to help people understand the small changes that can have dramatic effects,” he said.

Perhaps renewables’ greatest strength was to enable companies to both move away from energy-intensive systems and to “synchronise” cheaper power alternatives within an operation.

For example, renewables could provide the energy needed to operate conveyor belts or even rail units. In this instance, mines could reduce the reliance on mining trucks and the diesel these vehicles used.

The process could be extended into underground mines, where power costs rise in correlation to depth. It also had important health and safety advantages when carbon emissions were considered. “Ventilation can be difficult and particulate emissions from diesel engines, which we know are

carcinogenic, are problematic," said Davidse.

ALL CHANGE

Savings made through this process could also be offset against the installation of other, more capital-intensive renewables systems. In addition, any development simplifying the mining process was likely to embed welcome productivity gains.

"We don't have to think 20 years ahead on this; we think these things are possible now, but i[they require] a completely new system redesign. Think about your portfolio not just based on the value of the ore body [but also] about where the pack is going to be and not where it currently is," Davidse noted.

He added that one of the greatest hurdles for renewables adoption was mental – that management teams across the industry needed to change their mindsets in this field. Those who thought big would reap rewards fastest, he stressed.

For Canada, renewables in mining had an important role at a national level, as they could help the industry unlock the country's vast but latent wealth in its northern regions. In tandem, renewables could also deliver energy benefits to the remote communities living in these areas, leaving a legacy energy source that worked long after the mine closed.

Further into the future, renewables might no longer be an option but a necessity, with power not always available as and when required. Indeed, it was increasingly likely that industrial energy consumers would have to ensure the reliability of their own energy supply. "[In the future] you'll need to figure out how to fit your work around power and not the other way around," Davidse said.

"So start thinking big now," he continued. "Build the partnerships you need to innovate and cooperate. And remember it won't only be about capital in the future – it will also be about collaborative capacity and integrative capacity."

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