Mining’s future is underground

As demand for minerals continues to grow, the mining sector faces the challenge of economically and safely accessing deposits that are deeper underground. But, “the deeper you go, the more expensive it is to mine,” Chair of Minerals Industry Engagement, mining engineer and Professor at University of Queensland Gideon Chitombo said.

Professor Chitombo has worked for mining companies around the world. He is a champion of underground mass mining and has a strong interest in efficient and economical mining methods.

He said mining companies were out there to get value from their projects and to extract as much ore as it can, while maintaining operational excellence.

Block caving is an efficient mining method that is commonly used to access ore deeper underground. It is based on the concept of gravity forcing the ore to the various draw points below it. Examples of block caves include Rio Tinto’s Northparkes mine and Newcrest’s Ridgeway mine, both located in central New South Wales.

“To be able to access and mine the ore body that is deeper in the ground economically, you need innovation and the right technology,” he said.
“One of those innovations is in the ore extraction itself.”

With block caving you can’t see what you are doing unlike an open pit mine. “So you need to have the proper strategies in place to make sure that dilution is minimised,” he said.

Dilution is when lower grade ore or waste gets into the system. This results in watered down profits and revenue for the mining company, which can make the operation unsustainable.

This is where Elexon come in, as it is a pioneer in electronically measuring ore recovery. The company creates innovative and value-adding solutions to assist with maximising ore recovery.

The system enables mining companies to gain a better understanding about the path the ore material travels to get to the various draw points. The data collected provides information about how much of the ore has been extracted and which direction it has travelled – information that is vital to understanding how well the mine is performing.

In addition, the data assists mining companies in improving their operational systems for both current and any future operations.

“In my opinion, Elexon is developing important tools for the mining industry to efficiently and economically recover ore as the future of mining heads deeper underground,” Professor Chitombo said.

Another issue with having to mine deeper is that there are higher stresses, and the extraction of the ore needs to be done safely with minimal impact to the environment, he added.

To tackle the issues that the mining industry faces in the future, Elexon’s experienced team of engineers continue to work in partnership with mining companies to analyse challenging situations, develop solutions and implement them.