

Leading a paradigm shift to renewable energy in mining

Adriaan Davidse, Deloitte, Toronto, Canada

The market and technology context of energy and mining has changed. Mining is simultaneously experiencing significant pressure from multiple stakeholders related to profitability, environmental performance, and sustainable community development to name only a few. These challenges leave organisations exposed that do not change and open up attractive opportunities for those that can successfully embrace the paradigm shift in energy, which includes the greater role of renewables. Predictable performance improvements of exponential technologies like solar PV, as well as other technologies that aid with the integration of renewables provide indications on the feasibility and viability of more sustainable and competitive energy-related solutions. However, the rate at which mining companies will adopt these new energy solutions are less predictable, and many barriers exist. Having a clearer understanding of the importance of energy as a critical resource in the operation of every mine and the impact on every stakeholder is needed as a first step in understanding the value of alternative options like renewables.

Every operating or prospective mine is a unique ecosystem where all resources involved in the operations, and their interactions need to be understood and quantified to develop viable alternatives to the status quo. It is equally important to recognise some of the cognitive biases that make it harder to break free from the past. How we frame the challenge of energy transformation in mining matters. If renewables are only viewed as a partial substitute for diesel power generation, then its adoption and level of penetration will be dictated by the economics of the renewable technology as well as energy storage alone. Since all mining companies will have access to the same technology, their relative competitive positions are unlikely to change dramatically between similar mines in similar locations. However, miners that view renewables not merely as a source of cheaper energy supply but recognise it as part of an integrated energy-to-work ecosystem will have a greater chance to maximise the benefits of renewables much sooner to the benefit of all stakeholders.

New energy-related design principles are needed that will challenge traditional thinking and lead to the development of a mining model that is more conducive to maximising the value from renewable energy. Companies that can accelerate the adoption of renewable energy by adopting a new paradigm will ultimately become significantly more sustainable and competitive.