

Energy efficiency in the mining industry



By [Professor Jan du Plessis](#)

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The current state of the mining industry can only be described as an industry in distress. The continuous spiral of lowering commodity prices with the combined steep mining inflation has put many mining operations at the risk of closing down. Internationally, steep energy cost increases continue to further erode already small margins.



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Biggest expenditure

Escalating electricity costs have become one of the biggest expenditure drivers in mining operations. During the last eight years, energy costs have trebled when expressed as a percentage of total running cost in South African mines. More than 20% of the current operational cost is directly attributed to electricity costs for deep mines. An additional concern for the industry is the security of supply and load shedding has further impacted on industry productivity.

In an effort to manage and reduce electricity costs, energy management strategies can be developed, inefficient operating units can be replaced and the operation of energy-consuming components of ventilation systems can be optimised.

Better utilisation of resources

In South Africa, our deep and hot mines require huge energy input to make sure that healthy and safe working environments are provided. In this area the mines have made huge impacts in managing energy through better utilisation of resources. One method to reduce direct energy inputs is to replace old and energy inefficient equipment such as auxiliary fans. The importance of managing energy requirements and the implementation of continuous improvement activities must underpin the drive for lower energy inputs or in other words improved energy productivity.

The continuous need to reduce greenhouse gas emissions and commitments made by South Africa have also led to a number of potential measures that are as yet unresolved regarding implementation. These include the potential promulgation of the carbon tax law. This will lead to additional direct costs to mining operations and may also have a throughput tariff increase further increasing the cost associated with energy.

Where to from here for mining houses?

Is it a case of self-generation or at least part generation? This is something that must be considered to meet the need for security of supply and price certainty going forward. This can potentially all be met through utilising renewable energy generation further assisting in offsetting future carbon-related costs and securing the future of our industry.

ABOUT PROFESSOR JAN DU PLESSIS

Professor Jan du Plessis holds a PhD degree in Mining Engineering from the University of Witwatersrand. He joined the mining industry in 1986 and later obtained his Mining Engineering degree (cum Laude) at the University of Pretoria.

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