

Decarbonisation myths in mining: what are the greatest obstacles miners face to decarbonise?

Decarbonisation obstacles for miners

Most mining companies are actively working to reduce their emissions, but are facing barriers which slow progress and delay decarbonisation.

Many obstacles arise from solutions and approaches which have been developed to address previous issues, recognising an earlier concern, yet failing to reflect changed circumstances.

Mindset

Assuming 'doing good for the world' will come at (often significant) cost

Using engineering teams to develop decarbonisation solutions from first principles

Putting proven technology renewable projects through mine development capital processes

Confusing 'behind the meter' energy solutions with a requirement to build and operate these power solutions yourself

Reality

The first 60% carbon reduction is typically NPV positive

Get greedy and implement these solutions quickly to bank the savings.

Hit the ground running with experienced help

Rather than taking months or years to create incomplete and often uneconomic plans (e.g. solar only), the right team can build robust, NPV positive plans for your site within weeks.

Match your capital process to the real risks: renewable technologies are proven and readily available

With significant installations of wind, solar and batteries, acquiring proven renewable technologies is not dissimilar to how fleet has historically been purchased. So why send them through your normal gating process when a more straightforward commercial approach is better suited?

Keep low risk projects out of the 'standard mine building capital process' by assessing what the risks are and managing them appropriately .

Don't assume you need to build, own or operate your behind the meter power solution

In many cases, behind-the-meter power solutions built on or near your site have significantly better economics than traditional PPAs (Power Purchase Agreements) which move electricity across long distances of network.

Just because these solutions are on or near your site, don't assume that requires you to build, own or operate these solutions. Usually you don't.

These projects save you money – get greedy and decarbonise now

While all sites are different and the exact solutions vary with mine life, type, location and access to the electricity grid, three key themes prevail:

01 Ensure your site electricity is renewable – this can be done rapidly with attractive economics

- Typically, existing operations can economically achieve greater than 65% renewables now. Most greenfield sites can economically achieve even higher levels of renewables
- In most cases, the combination of renewable power sources and storage with some fossil fuel sources in a behind-the-metre hybrid solution has vastly superior economics to a power purchase agreement (PPA). These solutions can be as much as 30% cheaper and create business opportunities within your local community (rather than miles and miles away)

02 Electrify what you can

With technology developments and social expectations moving at pace, buying a diesel fleet now is something you are likely to regret within five years. Diesel electric gives superior emissions and options to combine with other lower carbon solutions. If you need a diesel fleet to tide you over for the next few years, explore options to acquire them second hand.

Other emerging electrification opportunities include:

- Ancillary equipment like compressors and drills
- In open pit
 - A great starting point is trolley assist on top of diesel-electric
 - Greenfield operations can explore in-pit crushing and conveying
- For underground
 - Existing operations can adopt battery electric with options for dynamic charging (e.g., BluVein)
 - Greenfield operations can explore electric hoisting via a shaft (eliminating a decline and trucks), railveyor, conveyor, and smaller battery electric trucks.
 - All these options significantly reduce ventilation requirements and eliminate most of the diesel particulate carcinogen problem

03 Take advantage of dynamics of renewable energy

The availability of wind and solar electricity changes with the weather and time of day. This creates times when there is excess electricity, creating the opportunity to cheaply run intermittent elements of your operations.

Opportunities include using excess renewable energy:

- For ultra fine grinding
- To produce water (if water is in short supply)
- To run heating and cooling to store up energy and act as a battery

