http://www.miningweekly.com/article/diesel-price-plunge-slowed-but-not-stymied-renewables-uptake-2016-01-09

Diesel price plunge slowed but not stymied renewables uptake

9TH JANUARY 2016 BY: SIMON REES - CREAMER MEDIA CORRESPONDENT

Photo by: Barrick Gold

TORONTO (miningweekly.com) – The mining sector's uptake of renewable energy could be slowed by cheaper diesel in the wake of crude oil's price plunge, head of energy consulting firm THEnergy **Thomas Hillig** told an audience at a recent Canadian German Chamber of Industry and Commerce conference on renewables in mining, in Toronto.

He highlighted, however that other factors that spur demand have remained in place, particularly as governments, investors and communities demand greater environmental sustainability from mining operations.

In addition, Hillig predicted that the falling price and growing capacity of energy storage solutions were likely to make renewables more attractive, particularly for off-grid mines or regions where grid power was weak and suffered blackouts.

PROS AND CONS

The case for installing renewables in response to high diesel prices falters on the fuel's decline in lockstep with crude oil. "But is this where fossil fuel prices will be in the future?" Hillig asked.

He highlighted growing civic and political pressure to reduce fossil fuel use, which often results in tighter carbon emissions controls and the use of taxes or tariffs as instruments to achieve this.

Diesel supplies also incurred ongoing transportation costs that renewables circumvent. In addition, theft of diesel and security of supply were other factors to consider, especially for mines in riskier jurisdictions.

Therefore, renewables remain a possible hedge against future diesel price increases and are a means to at least embed some security of energy supply.

Hillig noted that energy continued to make up between 20% and 35% of a mine's operating costs, a significant consideration for companies seeking to cut expenditures and boost productivity. Carefully tailored renewable solutions could still tap into this and offer notable savings.

However, renewables frequently incur higher up-front installation costs, an expense that is worked through after several years of operation.

For mines with shorter life spans, this up-front investment might make little sense. But for longer-life mines it offers a more practical option. In addition, renewables technology had become far hardier, with solar arrays now lasting 25 years or more.

However, for some off-grid operators there is also the possibility of being linked to a national grid and this acted as another breaking force, particularly if the grid offers reliable and relatively cheap energy.

FURTHER CHOICES

In an era when mining's corporate image has become a top priority, renewables offer other advantages. For example, they are favoured by the investment community and the wider public, a force that could be increasingly important for greater uptake.

Digging deeper, THEnergy has conducted interviews across the finance industry and has noted that mining companies with integrated renewables were viewed positively and were seen as more progressive than many of their counterparts.

The use of renewables also signalled a forward-looking approach to investment decisions and a willingness to not be bound by past strategies. In addition, there was a positive effect among workforces. "Renewable energy projects motivate employees and that's something to also consider," Hillig noted.

Further, the level of renewables options has grown: solar, wind, hydro, biomass, geothermal, tidal and wave have been utilised across a range of heavy industries. However, the mining sector's uptake primarily revolves around the use of solar and wind.

With solar, there has been the specific problem related to its price plunge over the past few years as companies have been left to wonder if it makes sense to invest in a technology that would be considerably cheaper within a matter of 12 months.

But Hillig argued that much of the fall had been due to debottlenecking of silicon supply. "Solar

module prices fell by 50% at the end of 2010 and into 2011," Hillig said, citing further falls since. "But these were special circumstances and you cannot expect these decreases in solar to continue."

Much of the renewables installed over the past decade have been comparatively small in scope or even pilot in nature. It has also taken time for renewables suppliers to approach the mining sector as they seek out other "lower-hanging fruit" instead.

Hillig identified ten off-grid and ten on-grid operations. Off-grid examples included Barrick's Veladero operation in Argentina, which has a wind/diesel mix for 2 MW, and the Diavik diamond mine in the Northwest Territories, which has also implemented a wind/diesel solution for 9.2 MW.

On-grid mines use renewables for cost savings but also mitigate the effects of weak grids suffering blackouts or brownouts. However, large-scale integration of renewables at the on-grid level has yet to be witnessed.

Hillig has tracked grid-connected projects in South Africa, Chile and the US that have used renewables for a few hundred megawatts in total, a trend that has yet to change. Chile is an interesting example as its national energy capacity has been unable to catch up with development, pushing grid energy prices higher.

On-grid examples from Chile include Barrick's wind farm at Punta Colorada; solar arrays used at the Codelco copper mine; and Antofagasta Mineral's El Arrayan wind farm, which feeds the Los Pelambres mine.

WHAT'S IN STORE?

Energy storage solutions tied to renewables have become cheaper and have started to offer much greater capacity. This could have operational implications as surplus power created by renewables would be stored and used if the wind dies down or cloud cover affects a solar array's efficiency.

The goal is to ensure a level supply of power. "The main function of storage is not to provide electricity during the night, but to balance fluctuations of renewable energy sets," Hillig stressed.

The level of renewables and storage solutions used in the future would remain on a case-by-case basis and could depend on storage solutions falling further in price. If that occurs then more mining companies might be tempted to adopt or increase renewables.

Greater efficiency and capacity might also mean less diesel generation at night or even for the generators to be switched off.

"If the price of storage really comes down then there could be the possibility of an off-grid [renewable] operation for 24 hours," Hillig said. "But at the moment I can't see a business case for 24-hours off-grid based on wind, solar and on storage. This is especially true for consumers, like the mining industry, that have high load use."

Phone: +27 (0)11 622 3744
Fax: +27 (0)11 622 9350
Email: newsdesk@engineeringnews.co.za

Website: http://www.engineeringnews.co.za