

REPOSITIONING RENEWABLES TO MEET THE MINING INDUSTRY'S ENERGY NEEDS

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It's increasingly clear that mining and renewable energy are two great businesses that belong together -- and yet figuring out the nuts and bolts of getting projects off the ground isn't always easy.

For many renewable-energy companies, the slow pace of approving projects poses an ongoing challenge. "We have the skills the mining sector needs. The issue is getting momentum behind the mining sector to believe in these projects," says Douglas McAlpine, who is in charge of microgrids at RES Canada.

Mark Bongiovanni, Mining and Metals Sales Manager for Schneider Electric in Canada, points out that generalizations are difficult to make because each mining company -- and even each individual mining site -- operates under its own unique set of considerations.

He notes that "the diversity of the cost of energy in each country is what's driving development. In

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companies where it's difficult to get energy to the mine site, whether it's diesel or gas or the electrical grid, obviously, they're more interested in looking at how to generate power locally." He continues: "Ultimately, it's a value proposition that each company -- and, in some cases, each site -- needs to evaluate for its own needs."

Honing the Key Messages

McAlpine emphasizes the importance of continuing to clear up misconceptions around renewables.

One key message that still needs to be fully addressed is stability. "We need to overcome the perception that renewables are unreliable," says McAlpine. As renewable companies become better able to explain how intermittency can be managed, mining companies are growing more confident in the potential of wind and solar energy. "The most important message is that renewables can be a stable source of power," he says.

Other important messages to convey are economic. McAlpine believes that renewable companies excel at illustrating the benefits of solar plants or wind farms in terms of carbon savings and emissions reduction, but they need to do an equally compelling job of explaining the dollars-and-cents equation for mining companies. He continues: "Renewables are price competitive in a number of areas, particularly in the mining sector in which you have isolated and remote mines."

Bongiovanni agrees: "Mines want to reduce the cost of energy and they want reliability. If they can reduce the cost of energy and improve the reliability of their operations, it's a very simple decision."

A Meeting of the Minds?

Oleg Popovsky, Global Business Development Director for SunEdison and board member at American Vanadium, notes that renewable energy went through an identity crisis in its very earliest days. "Renewable energy is this big, interesting animal.



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Douglas McAlpine,
Project Manager,
RES Canada

Is it going to be part of the technology sector? Or the clean-tech sector? Or part of the traditional energy sector? What is it?" he asks. "Well, it's all of the above."

Renewable energy providers are less fragmented now than they were in the recent past, and Popovsky believes that the industry has evolved in other ways, as well, so that renewable energy "looks more and more like the mining industry." He explains that renewable companies operate within three main business stages, each of which corresponds to a stage in the mining industry. He likens development in renewable energy to the exploration stage of mining, and this is followed



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Schneider Electric

by an implementation stage in both industries. As renewable energy concerns increasingly turn to independent power producers (IPPs) to sell energy into the marketplace, what they're doing corresponds to the final stage in mining in which ore or minerals are sold to different industry players.

Popovsky believes that these business-cycle parallels "should make the renewable industry more digestible, or understandable, for the mining sector." At SunEdison, for instance, "We have created a financial product to make renewable energy projects align with the problems that mining companies are looking to solve." Specifically, he says, SunEdison builds solar power plants on



mining sites and then sells 100% renewable power to the mining companies just as they'd be sold any other type of electricity.

Practically speaking, renewables companies are broadening the scope of their businesses to perform energy management functions-- everything from energy storage to the control systems that regulate renewable energy and fossil fuel sources. McAlpine emphasizes that these new areas are applicable to mining. "We've been evolving into those areas because we thought they'd be globally significant, not just significant for the mining industry, and it just so happens that these are some of the key things in the mining sector, too."

Mining companies are undergoing a transformation of their own. Schneider Electric's Bongiovanni points out that ten years ago, the largest mining companies dominated the industry out of a prevailing belief that "bigger was better." Today, he says, "better is better," meaning that those mining companies able to innovate and produce at a lower cost are going to wind up being winners. Given this new dynamic, the mining industry is now far more ready to listen to how renewable energy companies can help lower energy costs and solve other problems that mines might be facing.

Along similar lines, Till Krumbholz, Sales Manager for the Energy Sector's Smart Generation Solutions at Siemens AG, has found it helpful to delve into the financial situation of the mining industry in order to provide solutions that are mutually beneficial. Specifically, he notes that mining



"They're looking for a third party to put up a power generation system -- so they can essentially buy power by the hour."

David Willick,
Commercial Director in North America
GE Mining

companies are keen to reduce their project risk, and therefore are highly appreciative of the performance guarantee solution that Siemens offers.

Chris Matthews, New Business Manager at Mainstream Renewable Power, notes that the business model set forth by purveyors of renewable energy has changed because mining companies have balked at investing in generation equipment.

The solution? Instead of selling mines a wind farm, companies like Mainstream realized that it was far more appealing to sell them a power purchase agreement, or PPA. "Nowadays," explains Matthews, "developers are approaching mining companies and saying, 'We'll build it for you, and we'll finance it. But you have to agree to buy the power.'" He continues: "That's a much more appealing prospect for a mining company, particularly nowadays when mining companies want to keep things off the balance sheet."

Matthews also sees renewable providers chang-



ing to adapt to a behavioral issue characteristic of many mining companies. Because most mining companies make decisions slowly, Mainstream has found that for renewable projects, especially hybrid projects in Africa, it often makes sense to wait for the mines to come to the renewable company, rather than the other way around.

Finally, David Willick, Commercial Director in North America for GE Mining, is seeing “a risk-sharing appetite” from mines uneasy with the idea of assuming the full capex burden of installing and commissioning a renewable-energy solution. “They’re looking for a third party to put up a power generation system-- so they can essentially buy power by the hour.”

This desire for partnerships comes out of the fact that mines are, by definition, temporary ventures that will eventually be depleted. Given this central fact, it’s no wonder that mines are concerned about investing in renewable energy when they may not be working at a given site long enough to reap the full return on investment. Willick therefore sees potential in partnering with local communities: “If we start working together and there’s some type of cost- and risk-sharing, the neighboring communities can benefit longer term. And that could make it more attractive for the projects to proceed in the shorter term.”



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New Business Manager
Mainstream Renewable Power

What the Future Will Bring

Many experts are convinced that energy storage is a critical component for improving renewable penetration at a mine site. Willick notes that General Electric has an energy storage solution that allows mines to put power into a storage facility when the wind is blowing or the sun is shining but the mine is consuming less energy than the power system is generating -- and then draw from that power later, when energy is needed again.

He also points out that technological innovations will help make the renewable equation even more attractive for mines. “Mines operate in challenging geographical locations with significant obstacles to overcome, whether it’s extremely

high rock face temperatures or extremely cold ambient temperatures,” says Willick. He points out that technology advances will prevail to increase the renewable penetration rate and drive down costs for mines.

That renewable energy companies have been able to quickly evolve to meet the needs of mining companies suggests that larger renewable energy projects within the mining industry will come to pass in the not-too-distant future.

McAlpine, for instance, is sanguine about the prospects of larger-scale projects being commissioned in the next two-to-three years. “Mines looking at these types of projects want to install larger projects. The desire is there,” he says. He therefore believes that 10-megawatt projects will start to be built soon instead of the one-or-two-megawatt pilots generally seen today, although he expects the initial rate of uptake for these sizable projects will be moderate.

This positive momentum will also help with the chicken-and-egg situation that has delayed progress for quite some time: mining companies are reluctant to invest in renewable energy projects without a proven track record, and renewable-energy providers can’t demonstrate success until mining companies start to take the plunge and try their solutions.

“One of the big problems has been how the mines perceive renewable energy,” concludes McAlpine. “Once they can visit and take a look at these plants operationally, they’ll be a lot more confident proposing them for their mine sites. They’ll start to understand the risks and won’t be so concerned.” ■

Meet the mines seeking renewable partnerships and the energy providers providing solutions at the **Renewables and Mining Summit and Exhibition**, October 15-16, Toronto.
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