



Columbia Center on Sustainable Investment

A JOINT CENTER OF COLUMBIA LAW SCHOOL
AND THE EARTH INSTITUTE, COLUMBIA UNIVERSITY

PRESS RELEASE:

The Renewable Power of the Mine

As renewable power integration in the mining sector gathers pace, a Columbia University study identifies financing and conflicting interests among different stakeholders as the remaining biggest roadblocks to wide-spread uptake.

The report, launched at the [Energy and Mines World Congress](#) in Toronto where independent power producers and mining companies meet to present and discuss the latest developments in the field, is the most comprehensive and up-to date study on how mining companies have integrated renewables in their mining operations, the roadblocks that still exist, and the future trends that are likely to further drive the roll-out of renewables to supply electricity to the mining sector.

“Solar and wind technologies have developed rapidly over the last few years to address intermittency and with prices falling dramatically, these technologies are now cost competitive at an unsubsidized level with traditional power generation sources. The technology is no longer the main hurdle” says Nicolas Maennling one of the authors of the report. There is also no lack of proposals from Independent Power Producers keen on providing mining companies with renewable power solutions tailored to their needs. However, finding financing is still problematic as mining companies can’t or don’t want to commit to long-term power purchase agreements needed to make renewable power projects bankable. Even in situations where sufficient reserves are found for a mine life of 10 or more years, mining companies are wary of committing to agreements that limit their flexibility of putting the mine on care-and-maintenance in case of a commodity price downturn, or being locked into a price agreement when future prices for renewable energy are expected to fall further. However, modular solar and wind technologies are being developed to try and address this problem

An even bigger hurdle in many countries is political. There are many powerful actors benefiting from the current system that see renewable energies as a threat. These actors include national utilities that would lose influence as a result of energy reforms enabling the entrance of independent renewable power producers, and politicians wanting to appeal to vested interests benefiting from the fossil fuel value chain. “South Africa is a good example of a case where the utility has resisted the full implementation of policies enabling the expansion of the independent renewable power producers in the South African power market even though the country has faced electricity outages and high electricity prices,” says Mr. Maennling. “The diesel fuel import and sale sector in many developing countries is also often controlled by influential and well-connected business elites. But the political opposition is not only confined to developing countries.

Trump won important states with his ‘Trump digs coal’ agenda and the current administration is doing everything in its power to slow the scale up of renewables in the US.”

At the sector and company level there are also competing interests. The mining sector is less geared towards innovative thinking and more conservative than other industries such as the ICT sector, which is leading in renewable power integration. The ‘first to be second’ attitude of wanting to integrate new technologies once proven successful by others is hampering the testing of new renewable energy solutions at mine sites. At the company level, while management and the sustainability department of a mining company may be interested in renewable power integration for reputational reasons, a mine manager that is paid according to meeting production targets may not. Furthermore, contractors are incentivized to design conservative systems with low renewable power penetration rates to avoid threats to the stability of the power supply.

When speaking about the future, Perrine Toledano, the other co-author of the report is confident that “the momentum and long-term trends all point towards renewable energies playing a bigger role in the mining sector. Apart from the continued expected price fall of solar, wind and storage solutions making these more attractive from a business perspective, there are increasing pressures coming from various stakeholders pushing mining companies to reduce their greenhouse gas emissions, which will require using renewable power sources.”

Climate change issues have topped shareholder resolutions in recent years. Consumers too are seeking a responsible value chain. Apple, for example, is putting pressure on suppliers to reduce emissions. Being one of the biggest emitters in the value chain of many consumer products, the mining sector will be affected by these trends. The report details, for instance, that in the automobile sector, about two thirds of the total carbon content of the car during its lifecycle will shift from use-of-car with an internal combustion engine to the production of a car with an electric engine. The carbon content of the aluminum, copper, lithium and cobalt that is required to produce the car will ultimately dictate how ‘green’ the vehicle really is.

“As the impacts of climate change intensify the political pressure on governments and those opposing renewable energies will also mount” says Mrs. Toledano. “This presents an opportunity for forward looking mining companies to position themselves and build a competitive advantage by developing their expertise in renewable power integration, creating premium low-carbon mineral products and reducing their exposure to carbon related risks.”

Donors too are seeking to provide increasing technical and financial support to renewable energy projects that power mine sites and support electrification efforts. “With rising mineral demand and falling ore grades, energy demand by the mining sector is estimated to increase by 36% by 2035. Today, energy produced and procured by mining companies is mostly fossil fuel based. This will have to change if the sector is to contribute to the decarbonization of the world economy, needed for countries to meet the target adopted at the Paris Agreement of keeping global temperatures from rising more than 1.5-2 degrees Celsius. The German Cooperation therefore funded the [Columbia Center on Sustainable Investment](#) at Columbia University to conduct this study,” says Tim Schloesser from the Extractives for Development sector program. “The report,” he adds, “contributes directly to the new Climate Smart Mining strategy which is currently being developed by the World Bank in cooperation with GIZ.”

You can access the Renewable Power of the Mine report [here](#). Apart from providing more detail on all the roadblocks and drivers, it features 38 case studies that highlight practical examples and lessons learned. Recommendations to address the outstanding roadblocks are included for governments, mining companies, independent power producers and donors.

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