

Mining and solar in Chile: PPA hope?

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Solar photovoltaic (PV) developers Pattern Energy and SunEdison have both recently signed power purchase agreements (PPA) with Antofagasta's Los Pelambres copper mine. Could this match between Chile's power-hungry mining industry and a rapidly growing solar presence in the arid north be an answer to Chile's PPA woes?

Chile's market dynamics have proven fertile ground for renewable energy, and in particular solar. Unlike many of its Andean neighbours, Chile has no indigenous fossil fuels and its matrix is heavily dependent on socially contentious hydro power projects. This, coupled with huge demand for power from its mining industry and soaring electricity prices, has contributed to the increasing competitiveness of solar as an alternative energy source, even in the absence of government subsidies.

Renewable rush

Michele Bachelet's administration has been decisive in its support for renewables. In Bachelet's energy plan published in May 2014, she aims to boost Chile's renewable energy levels so that it represents 20% of the electricity matrix by 2025. Since taking office in March 2014, her government is reported to have granted more than 70 environmental permits for solar and wind projects.

Spanish and US Developers in particular have flocked to Chile to take advantage of some of the world's most abundant solar resources in the Atacama Desert, however, even once environmental permits are in place, financing projects has proven difficult.

Given the significant number of solar projects which have secured environmental approval, relatively few have reached financial close – around eight projects in the last 18 months according to *IJGlobal* data. Most of those projects relied on multilateral debt from institutions such as the Inter-American Development Bank and the Overseas Private Investment Committee (OPIC). The great perceived difficulty in financing projects in Chile is PPAs, or the lack of.

Bilateral market

Chile's power market is highly concentrated: currently the largest companies dominate 76% of installed capacity in the central grid (SIC) and 98% in the northern grid (SING). PPAs in Chile are typically awarded bilaterally and the absence of public auction mechanisms has made it notoriously difficult for new entrants to secure these agreements.

One New York banker says "Chile's power sector is dominated by incumbents and distribution company tenders are designed with them in mind. It's difficult for smaller companies or anyone with a renewable project to compete". While Bachelet is expected to increase the renewable energy requirement in tenders for distribution companies, it is not yet known when or how this will be implemented.

With spot prices reaching highs of between \$125 to \$130 MW/h, there is also a perceived reluctance on behalf of

offtakers to strike long-term purchase agreements.

Going merchant

While international banks are still typically averse to financing fully-merchant projects, local commercial banks are demonstrating an increasing appetite for merchant deals. In June 2014, Corpbanca was the first local bank in Chile to participate in the senior debt facility for a merchant solar project in Chile, when it joined [multilaterals in a \\$155 million debt-financing for SunEdison's 72.8MW Maria Elena fully-merchant project](#). CorpBanca provided a parallel loan of \$39.8 million, in addition to a Peso VAT facility. The project is considered the largest merchant solar PV project in Latin America. Market observers expect multinationals to continue to play a fundamental role in the financing of partially- and fully-merchant projects.

Solar and mining a good match?

There has been a notable uptick in the negotiation of PPAs in Chile since last year notes Mike Till of Actis, an emerging market-focused private equity fund which is developing a renewable energy joint venture with Mainstream in Chile. "In northern Chile a lot of the opportunity comes from mining companies" he adds.

Chile is the largest copper producer in the world and as its mines age it is rapidly becoming more power intensive to maintain current extraction levels. Despite the growing demand for additional capacity, mining companies have historically shied away from long-term PPAs with power producers. Industry woes, such as slower demand from Asia and softer commodity prices, have disrupted some mining projects and resulted in them being suspended or cancelled.

Representing the significance of strong offtakers such as Pelambres, SunEdison closed a 21-year \$165 million financing package with commercial banks BBVA and Corpbanca in September 2014 for its Javiera solar project, which has a 20-year PPA with the mine. Even given the high level of liquidity in Chile's local bank market, the tenor is considered long.

Having already signed a [20-year PPA with Pelambres for power produced at its 115MW El Arrayán wind project](#), [Pattern announced at the end of September it has signed a 22-year PPA with the mine for its 104MW Conejo solar PV project](#) in Chile.

While industry observers accept that solar and wind projects are not a substitute to the baseload power projects which will be necessary to meet mounting energy demand in the medium to long term, mining companies such as Antofagasta, are demonstrating a willingness to complement their power bases with renewable sources.

Robert Mayne-Nicholls, general manager of Los Pelambres, has indicated that by 2014 30% of the mine's energy supply will be realised through renewable projects, "in the near-term we'll incorporate solar photovoltaic energy and in the medium-term we will add run-of-the-river hydro-electricity".

Industry experts speculate that if Chile is able to resolve environmental issues which have halted megaprojects such as the 2,750MW HidroAysén, it could have a negative impact on the business model for renewable projects. But for now evidence suggest mining companies are coming round to the idea of long-term agreements with solar providers.

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