

Mining infrastructure: new ways of extracting value

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A Global Infrastructure Perspective



The past year or so has been painful for the mining sector. Commodity prices have leveled off and capital is harder to come by. With investors focusing on returns rather than quantity, financial markets are punishing companies with big project pipelines and hefty spending programs – leading to project delays, big write downs and several high-profile CEO departures.

The downtrend is compounded by geological reality. For many commodities, much of the 'easy ore' has already been mined. Companies are building larger, more capital-intensive projects to mine lower grades in increasingly remote locations. This shift is changing the capital expenditure profile of many large mining projects, where infrastructure is now a larger investment than the pit or the plant itself.

Powering a gold mine in the Western Sahara, or getting iron ore from Canada's high Arctic to markets in the south requires significant infrastructure where none may have existed before.

Case in point: Oyu Tolgoi

Oyu Tolgoi, in the Gobi desert, is a copper-gold project that will account for nearly a third of the country's GDP once finished. Its ore body is the size of Manhattan, and the mine is expected to be in operation for 50 years. The project is managed by Rio Tinto as part of a joint venture between Turquoise Hill Resources (majority-owned by Rio Tinto), and Erdenes Oyu Tolgoi, which is wholly owned by the Government of Mongolia.

The US\$6 billion project is located 600 kilometers south of Mongolia's capital, Ulaanbaatar. When the deposit was discovered, the area was essentially

devoid of any infrastructure – no railways, no paved roads, and a neighboring town with no running electricity.

Diesel power stations were used during the construction phase. As the project now moves into production, power will be imported from China – necessitating construction of a 100-km high-power transmission line from the border with China to the mine site. Longer-term, a 450-megawatt power station will be built at the site.

In addition, the project is upgrading a 104-km road from the Chinese border, building a camp for more than 10,000 workers, and developing

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an on-site airstrip, roads, and water distribution systems. Like most major mining projects today, Oyu Tolgoi has made significant investments in the infrastructure of surrounding communities, building and upgrading hospitals and clinics, transportation links, power infrastructure, and water facilities (for a deeper look at the Oyu Tolgoi project, check out our recent article in *Insight magazine*).

Operating outside their comfort zone

The challenge for mining companies like Rio Tinto is that their core competency is discovering and developing ore bodies – not necessarily building infrastructure like power plants and rail lines. So they turn to global engineering, procurement and construction management (EPCM) firms for assistance. Even with vigilant oversight by the owner, contracting multi-billion dollar projects to an EPCM third party, without actually transferring adequate levels of risk to such third party, creates high financial risk for the owner.

Most contracts with EPCMs put the majority of that risk on the owner's shoulders. This traditional model is a challenge, because EPCM companies sub-contract the majority of construction works to other specialist firms and report back to the mining companies. If the right project controls,

tools and systems are not in place, the owner may not find out about delays or problems until it is too late.

But there are ways that mining organizations can minimize the potential for pain in the unfamiliar territory of infrastructure development. There are contracting strategies that have been used successfully by civil engineering contractors that mining companies could consider when assessing their project strategy and execution framework.

First and foremost, there is no substitute for a solid project plan, along with effective set-up of project controls and systems. Second, the dynamic between EPCM contractor and owner needs to change. Owners should put performance incentives in place, transfer more risk to the contractor, set clear expectations on communication, and instill rigorous controls to better manage the contract. Adequate work breakdown structures, and realistic cost allocation and tracking are a center piece – and, for multi-asset miners, a uniform and coherent approach is desirable if deviations are to be flagged as early as possible. Even if a project is well underway, there is an opportunity to assess and re-calibrate the sharing of risk between owner and contractor.

One emerging approach is to create partnerships between owners and infrastructure service providers. With the right contracts in place to ensure adequate service levels, we can foresee scenarios in which mining companies hive off the infrastructure parts of a project – and all the risks that come with them – to an infrastructure company, which owns the assets and can sell excess capacity to a host of public or private users. Capital costs are slashed, and the infrastructure component becomes an operating cost – an attractive scenario in today's capital-strapped environment.

Everyone's challenge

The days of free-spending are well behind us. The watchwords in today's mining world are cost control and return on investment.

As infrastructure needs continue to increase, the entire mining ecosystem – owners, EPCMs, suppliers and subcontractors – will have to collaborate and find new ways to develop the right infrastructure to allow them to continue digging ore out of the ground while keeping their investors happy.

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