David Paull, Aspire Mining, Australia, explains why improving rail connectivity in Mongolia is the key to driving coal export growth.

INVESTING IN INFRASTRUCTURE

In early 2010, Aspire Mining turned its attention from gold in Western Australia to metallurgical coal in Mongolia through the acquisition of a promising exploration project in the north of the country.

The project area is well known for metallurgical coal with Russia's Elegest coal basin approximately 300 km to the northeast and numerous small coal occurrences being mined in northwest Mongolia, mostly to supply local thermal power and heating plants. However there was no road or rail infrastructure available to move bulk commodities, such as metallurgical coal, to export markets. David Paull, the Managing Director, and Neil Lithgow, Non-Executive Director and major shareholder, are the founders of Aspire's Mongolian strategy and, while recognising the challenges of the location, they noted that if the Ovoot metallurgical coal deposit was large enough and it contained good quality metallurgical coal, rail infrastructure would be drawn to it.

Three years of focused drilling and development work and the Ovoot metallurgical coal project shaped up as a world-class metallurgical coal discovery, with 250 million t in probable reserves of a high-vitrinite, mid-volatile metallurgical coal with very high-fluidity and caking properties, ticking the boxes in terms of size and quality. However, this discovery coincided with a dramatic fall in metallurgical coal prices and the prospects of funding a substantial 549 km rail alignment extension were slim.

Aspire's focus turned to reducing capital and improving the economics of a joint mine and rail development. Capital costs were reviewed, and with lower input costs, reflecting post-boom conditions, and the identification of a more direct alignment seeing capital costs drop to US$1.2 billion plus contingency. It was also apparent that to get the lowest possible 'fixed on rail' cost to the Chinese border, it would need the rail built and connected through to the Ovoot mine, rather than developing the railway in stages and using partial trucking options.

Aspire incorporated its own rail subsidiary, Northern Railways LLC, to pursue the development of the Erdenet to Ovoot railway. The strategy was to sell down ownership interests to rail investors over time. Northern Railways is currently owned 90% by Aspire and 10% by the Noble Group. Northern Railways was granted a rail concession by the Mongolian government in August 2015 to build, operate then transfer the railway after 30 years of

operation. Northern Railways has until August 2018 to commence construction.

In September 2014, the Erdenet to Ovoot railway was given a major boost with an agreement announced with Russia to review the feasibility of a new northern corridor connecting the Erdenet to Ovoot railway with the Russian rail network. Erdenet to Ovoot railway was no longer a dedicated line servicing the Ovoot metallurgical coal project. It was now a key component in the development of rail to commercialise Russia's Elegest coal basin. Around the same time, a separate agreement between China and Mongolia signalled the inclusion of Mongolia in China's ambitious 'One Belt, One Road' policy to improve trade links to Russia and eventually Europe.

In June 2016, a trilateral presidential meeting between China, Russia and Mongolia approved a range of projects to facilitate improvements in infrastructure through Mongolia. This was a broad agreement that included connecting international highways, power and pipelines and rail, including the Northern Rail Corridor, which includes the Erdenet to Ovoot railway. In total there are 28 infrastructure related projects that have been identified to progress the development of Mongolia as a trade-transit corridor.

This new level of international cooperation between the land-locked Mongolia with its two neighbours has seen interest in coal explode. There are now a range of rail projects being actively pursued in the country, most being driven by the possibility of increasing metallurgical coal exports to China.

In 2016, Mongolia's metallurgical coal exports to China increased dramatically by 85% to 23.56 million t – just short of Australia's 26.7 million t. Australia and Mongolia made up around 85% of China's metallurgical coal imports in 2016. However there is a massive difference in value of exports between the two countries. Australia largely exports premium washed hard coking coal, while Mongolia has a high proportion of unwashed semi-soft metallurgical coal in the mix, often purchased at a mine gate and trucked to Chinese customers.

It is well understood that Mongolia has an enormous capacity to be the largest sustainable exporter of metallurgical coal to China given its resource base but has lacked the transport infrastructure to deliver large volumes efficiently. There has also been a lack of investment in wash plant capacity to enable Mongolian coals to meet seaborne traded quality benchmarks although this seems to be changing with the world-class Tavan Tolgoi metallurgical coal projects working toward establishing access to wash plant capacity and smaller wash plants being established around the country. Direct rail access for Tavan Tolgoi coal into Chinese markets is also being actively progressed. This will build sustainable, scalable and environmentally beneficial access to Chinese markets for this coal.

Mongolia's rail network has the Trans Mongolian railway as its backbone. Built in 1949, it is a Mongolian/Russia joint venture that is due for upgrading and modernisation. The Trans Mongolian is currently a single line railway with a confirmed freight capacity of 22 – 24 million tpy. For the last few years, it has been operating at close to this capacity without any metallurgical coal accessing this line for export. All of Mongolia's current metallurgical coal exports are being trucked across various border crossings.

Mongolia has aggressive plans for developing its rail network, which goes hand in hand with realisation of growth in its mineral commodity exports. The development of the Northern Rail Corridor will unlock large metallurgical coal deposits in northern Mongolia and the Tuva region in Russia. But it will also have a broader impact of attracting more exploration and encourage the development of smaller resource projects that would benefit along the way. It will also be a catalyst to support a series of major upgrades to the Trans Mongolian line. Mongolian and Russian authorities have indicated that capacity planning for the Northern Rail Corridor should consider up to 30 million tpy (most of this taken up by metallurgical coal). This is 150% of the current demand for freight services along the Trans Mongolian.

This demand will evolve over time and underwrite further expansions in the Trans Mongolian railway with the ultimate goal of achieving a complete dual track line, which will provide a step wise improvement in travel time at lower costs. The freight capacity of a dual track line has been nominally set at 100 million tpy. This will not only provide scope for the 30 million t of freight from

Mongolian national rail policy with the Northern Rail Corridor in red.

the Northern Rail Corridor but also provide better rail freight services to support the concept of Mongolia as a transit corridor.

The integration of Mongolia into China's 'One Belt, One Road' policy is a game changer for its coal industry. While there are significant sources of metallurgical coal within close proximity of the Chinese border, which will continue to rely on trucking due to the short haulage distances, the rail developments being prioritised by the Mongolian government will have a dramatic effect on the country's ability to be a consistent low-cost exporter of metallurgical coal.

Completion of the Tavan Tolgoi railway will allow exports to increase from the players in the region to as much as 30 – 40 million tpy of washed metallurgical coal from the current 8 – 9 million t. Completion of the Northern Rail Corridor will see up to an additional 30 million tpy of Mongolian (mostly from the Ovoot metallurgical coal project) and Russian metallurgical coal gain to access the expanded Trans Mongolian railway.

These large undertakings require time and significant capital. However, Mongolia is geographically well placed to supply China, and Asia more generally through Chinese ports, with metallurgical coal replacing higher cost Chinese domestic production. But it will need these significant rail investments to secure a position as China's largest metallurgical coal supplier. There are long time frames for these developments and markets will have time to adjust and absorb to this new supply. While the rail to Ovoot could be completed within five years, it is likely that it will take a further three to four years before the connections to the Flegeet coal basin will be completed. The growth in the Trans Mongolian railway can be timed to match the growing demand form Northern Corridor customers.

The integration of Mongolia into China's 'One Belt, One Road' policy provides the catalyst for the growth in Mongolia's rail network that will see its coal industry finally reach its potential.

Mongolian Rail currently being used for domestic coal movement.