

Northeast Asia Coal Market and Mongolia's Export Potential

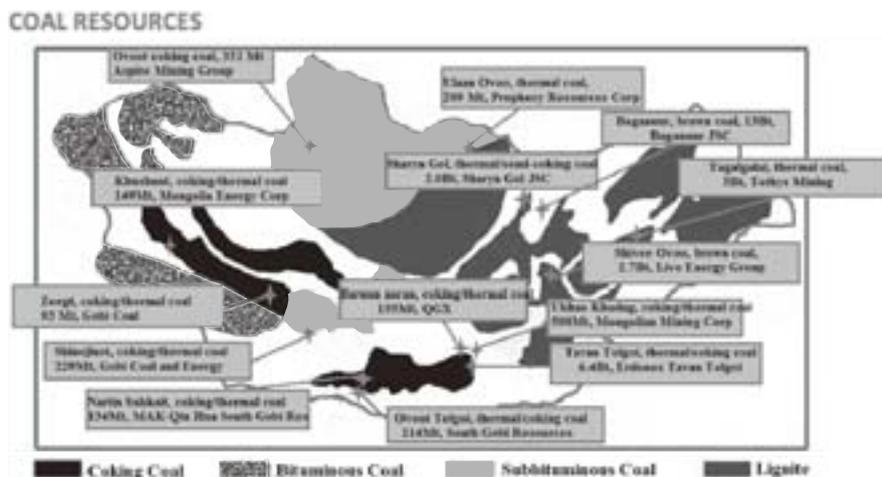
V. Enkhbold, PhD Candidate, School of Foreign Services,
National University of Mongolia

1. Mongolia's Coal Export Potential

Mongolia has vast mineral resources, such as gold, copper, coal, uranium, rare earth minerals etc. As of today, existence of 80 types of mineral resources, more than 1,000 ore deposits, and 8,000 mineral resources have been confirmed. Mining industry accounted for 24% of Mongolia's GDP and 85% of the country's total exports in 2011. Mongolia's potential coal reserves are estimated to be about 170 billion tons¹ and around 70% of which is lignite. Most of these reserves are the proven resources, but most of them have not been developed due to lack of infrastructure. Coal resources are reserved in 15 main sediment filled basins and more than 120 locations of coal deposits have been confirmed so far. The "Coal program" of the Mongolian Government that includes future development policy was initiated in 2008 and formulation of the mid and long term plans, including coal export strategy, is currently in progress. Tavan-Tolgoi is the country's largest coal deposit, which contains an estimated 6.5 billion tons of coal². About a quarter of the coal at Tavan-Tolgoi deposit is high-grade coking coal - a key ingredient for steel production. The rest is thermal coal. The coal reserves are massive and located in close proximity to the surface, which makes Mongolian coal easy to mine. Although Tavan-Tolgoi is one of the most giant coal deposits in the world, Mongolia has many other coking coal deposits with proven resources, such as Nariin-Sukhait, Ovoot and Khushuut in the southern part of Mongolia. Mongolia overtook Australia to become China's the largest coking coal supplier in 2011 owing to its rapid increase of coal production and competitive export prices. Mongolia exported 22.5 million tons of coking coal to China in 2011 that was 33.2% higher than a year earlier. The combined share of Mongolia's top-6 coal exporting companies' exports accounted for 96% of total coal exports: Energy Resources (26%), MAK (21%), Tavan-Tolgoi (19%), South Gobi Sands (15%), Erdenes Tavan-Tolgoi (13%) and MoEnCo (2%).³

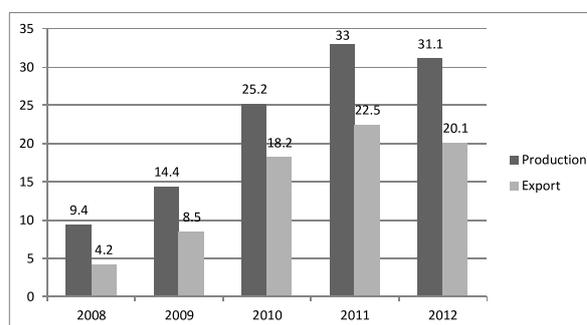
Further, the Mongolian government is keen to

Figure 1 Mongolia's Coal Resources Map



Source: Mineral Resources Authority of Mongolia

Figure 2 Mongolia's Coal Production and Export, million tons



Source: Mongolian Customs Authority

diversify its coking coal export markets. In order to transport coal to China and other markets in Northeast Asia (NEA), the Government of Mongolia has formulated a policy and laid out a plan to build up new railway connections that link coal deposits in the Gobi Desert with Russia and China by connecting Mongolia's existing railway network to the Trans-Siberian railway. Stimulated by the economic liberalizations of the NEA region, Mongolian economy is growing rapidly recently and had a peak growth of 17.5% in 2011. Mongolia's economic development boom was mainly supported by the mining developments, especially coal. In 2011, coal exports accounted for 47% of the country's total exports. Today coal is a major contributor to the state budget along with

¹ www.mram.gov.mn

² www.energyresources.mn

³ Customs Authority of Mongolia

copper. Coal mining firms have become prominent taxpayers and are creating new jobs. Thus, coal sector has become a driving force of the economy. About 23 mining resources and 7.8 billion tons of coal reserves had been officially registered in 2011. There are 85 officially registered coal mines in Mongolia, though they vary in coal qualities.

Mongolian coal exports began in 2003 and reached its peak in 2011 due to greater demand of China. Mongolia's coal wealth attracts interests of foreign investors and multinationals. According to the estimation conducted by the Ministry of Mining, Mongolia will be able to export around 50 million tons of coal in 2015, 65 million tons in 2020 and 75 million tons in 2025. Mongolia is targeting China and NEA as potential target markets for the Mongolian coal.

In 2011, about 19,000 tons of washed coking coal from Ukhaa-khudag coal mine was successfully delivered to Japanese eastern port via Vladivostok sea-port in the Russian Far East. This shipment was an initial attempt to supply Mongolian high quality coal to NEA market. If Mongolia would be able to link its railways with Trans-Siberian railway, there will be tremendous opportunity to export Mongolian coal to the NEA market.

2. North East Asia Coal Demand

According to 2011 World Energy Outlook⁴, there are 861 billion tons of coal reserves left in the world that are equivalent to 112 years of global coal output. In terms of energy content, these reserves are approximately 3.2 and 2.5 times larger than those of natural gas and oil respectively. The International Energy Agency⁵ argues that coal demand is strongly correlated with economic growth. Faster economic growth normally results in faster growth of coal demand. Power sector will remain the main driver of global coal demand between now and 2035.

The worldwide energy coal production reached 5.67 billion tons in 2011⁶, of which China produced nearly 50% and Russia produced 3.1% of total. China imported 146 million tons of energy coal from Indonesia, Australia, Vietnam and Mongolia in addition to its domestic production, while Russia exported 110 million tons to China, India, Japan and European market. Also, Japan imported 121 million tons, ROK 97 million tons of energy coal from Indonesia, Australia, Russia, USA and Canada. As per coking coal, worldwide production reached 967 million tons in 2011, of which China along produced 52.1%, Russia 8.1%, and Mongolia 2.1%. As Chinese local productions did not meet its local demand, China imported 38 million tons of coking coal from Australia, Mongolia and Russia. However, Japan imported 54 million tons and ROK imported 32 million tons of coking coal from Australia, Russia, Canada and USA. Thus, NEA countries represented more than half of the world coal production and the major consumers, such as China, Japan and ROK, imported 354 million tons of energy coal and 124 million

tons of coking coal from other markets.

In the NEA region, only Russia and Mongolia exported coal to other markets. Forecasts and surveys conducted by different international agencies and consulting firms argue that in the near future, these two countries could be potential coal suppliers in the NEA region due to their geographical proximity. On the other hand, it has been evident that due to its increasing domestic demand for coal, China is gradually shifting to be a net coal importing country, such as Japan and ROK (Table 1).

When China acceded to WTO in 2001 with commitments to liberalize its market for foreign investors, Government of China has taken numerous measures to bring its laws and regulations in accordance with international norms. As a result, China created comparatively favorable and competitive business environment in the country, which led the country to attract increased inflow of foreign direct investment.

As illustrated in Table 2, Australia and Indonesia are dominating the NEA coal market. Australia exports both energy and coking coal, however Indonesia exports mainly energy coal to the NEA market. Vietnam might impose limitations on its coal export even though it exported some amount of energy coal to China.

Coking coal represented 19.2% of Chinese total coal imports in 2011, whereas those of Japan and ROK accounted for 39% and 20% of their total coal imports respectively. North American coal exports share 15% of ROK's total coal imports and around 4% in the both Chinese and Japanese coal imports. Here, we can make a judgment that the North American coal export is less than 10% of the shares in the NEA coal market. Surveys conducted by some international agencies and consulting firms argue that shares of the North American coal in the NEA market would decline gradually due to emerging coal exporters in the region with geographical proximities to the market.

Russian coal accounted for 9.8% of ROK's coal imports and around 6% of the both Chinese and Japanese coal imports in 2011, whereas Mongolian coal export represented 10.9% of Chinese total coal imports. Mongolia

Table 1 Northeast Asia Coal Production and Trade in 2011, Million tons

Countries	Energy coal			Coking coal			Brown coal		
	Production	Export	Import	Production	Export	Import	Production	Export	Import
China	2,831	-	146	504	3	38	136	-	-
Russia	178	110	-	78	14	-	78	-	-
Japan	-	-	121	-	-	54	-	-	-
ROK	-	-	97	-	-	32	-	-	-
Mongolia	-	-	-	20	20	-	-	-	-
World total	5,670	-	-	967	-	-	1,041	-	-

Source: World Coal Association

⁴ www.worldenergyoutlook.org

⁵ www.iea.org

⁶ www.worldcoal.org

Table 2 NEA Coal Importers in 2011

Importing countries	Origins of Imports	Import volume, Million tons	Share, %
China	Indonesia	64.8	35.2
	Australia	32.5	17.6
	Vietnam	22.1	12.0
	Mongolia	20.0	10.9
	Russia	10.6	5.7
	Canada	4.5	2.4
	Total	184.0	100
Japan	Australia	104.8	59.9
	Indonesia	35.5	20.3
	Russia	11.4	6.5
	Canada	9.6	5.5
	USA	6.3	3.6
	Total	175.0	100
ROK	Australia	44.7	34.6
	Indonesia	40.3	31.2
	Canada	14.5	11.2
	Russia	12.7	9.8
	USA	6.1	4.7
	Total	129.0	100

Sources: China Customs Statistics, Trade Statistics of Japan, Korea Trade statistics

became the largest exporter of coking coal to China in 2011 overtaking Australian coal.

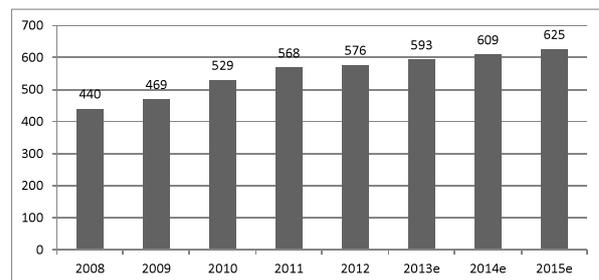
3. Russia-China Coal Cooperation

While the economic ties between Russia and China are tightening up, it provides a favorable condition to increase competitiveness of Mongolia - a landlocked country surrounded by these two giant markets. In September 2010, leaders of Russia and China have agreed to develop their relationship into a strategic partnership. As a result, in 2012 trade volume of the two countries reached \$88 billion and mutual investment became \$4.1 billion. Majority of the investments made in the energy and coal production, natural gas, construction of oil pipelines and infrastructure projects. In 2010, Russian Energy Minister and Head of the Chinese Energy Authority signed an "Agreement on Russia-China Energy Cooperation" in the Russian Far Eastern city of Blagoveshchensk. According to this agreement, Russia will supply 15 million tons of coal from the Russian Far East to China within the first five years and another 20 million in the next 20 years, whereas China will provide \$6 billion loan to Russia. In order to reach these ambitious targets of coal cooperation, Russia and China have established a state owned "Ogodzhinsky Energy" JVC aimed at developing Ogodzhinsky hard coal deposit located in Selemskii district of Amur region of the Russian Far East. Also, Russian and Chinese JV "Karakan invest" was set up in Kemerovo to jointly develop Karakan coal deposit. According to "Russia's New Energy Strategy towards 2030", Russian government is keen to move its coal exports from Europe towards Far East gradually targeting the NEA market. Therefore, the current Russia-China intensive coal cooperation is indicating that Russia can be a potential coal

Table 3 Russia's Coking Coal Production by 2020

№	Coking coal deposits	Annual capacity, Million tons
1	Alsatskoye	6.8
2	Elegest	18.0
3	Eliga	24.0
4	Mejegeiskoye	9.0
5	Ulug hem	12.5
6	Usunskoi 1	4.0
7	Usunskoi 3	4.5
	Total:	78.8

Source: IMC Montan

Figure 3 China's Coking Coal Demand, Million tons

Source: MMC

supplier to China and other NEA market in the near future.

There are seven coking coal deposits with various reserves are located in the Russian Siberia in the proximities to Mongolian northern border. According to IMC Montan consulting firm, Russia would be able to produce almost 80 million tons of coking coal by 2020 for local steel producers and for exports if the current infrastructure development projects meet their timelines. In May 2012, construction of 402 km long railway from the city of Kyzyl to the town of Kuragino was officially launched. The development of Eliga coking coal deposit in the Republic of Tuva in Siberia, aims to supply coking coal to NEA market via the Trans-Siberian railway (Table 3).

On the other hand, China has a huge demand of coal, especially of coking coal. Though China produced 3.4 billion tons of coal in 2011; it imported 184 million tons of coal from other countries. According to the Mongolian Mining Corporation projections, the potential demand of Chinese coking coal would increase by 7% in 2015 over the demand in 2012 (Figure 3).

Since 2005, Chinese Government is undertaking systematic measures to reduce its coal exports and increase its imports by imposing export taxes and various quotas on coal exports. As a result, China is shifting from a coal exporting country into a coal importing country. China imported 10 million tons of coal in 2003, 51 million in 2007 and 126 million in 2009. China imported 184 million tons of coal in 2011 that made China as a major coal importing country in the world overtaking Japan. Rapid economic growths and pressures from the international environment agencies led Chinese Government to cut numerous coal mines in the country, especially minor ones. This process is creating coal shortages for the Chinese domestic industries, and on the other hand it increases

opportunities for the neighboring countries, such as Russia, Mongolia and Vietnam, to take advantage of the Chinese growing coal demand.

4. Conclusions

- Although China is the second largest coal producer in the world, due to its increased domestic demand China is becoming a net coal importing country, such as Japan and ROK;
- Mongolia is estimated to have potential coal reserves of about 170 billion tons, most of which are the proven reserves. Owing to rapid increase of coal production, Mongolia overtook Australia to become the China's largest coking coal supplier in 2011;
- The NEA region represents more than half of the world coal production and it dominates the world coal market in terms of both production and consumption. Thus, in order to boost coal exports to China and other NEA markets, the Government of Mongolia has developed a policy and initiated its railway expansion projects that link Mongolian major coal deposits with the neighboring countries' rail routes;
- The recent Russia-China strong ties in coal cooperation will lead Russia to become a potential coal supplier to China and other NEA markets;
- Accordingly, owing to their geographical proximities, Mongolia and Russia tend to be the potential coal suppliers in the NEA region.

北東アジアの石炭市場とモンゴルの輸出潜在力

モンゴル国立大学外交学部 V. エンクボルド

(要旨)

モンゴルは、その膨大な石炭埋蔵量の恩恵を受けて、潜在的な石炭輸出国になりつつある。2011年に、オーストラリアを抜いて、中国市場への最大のコークス用炭輸出国となった。北東アジア地域は、世界の石炭産出量の50%以上を占めることから、世界の石炭市場における重要地域である。中国は、日本や韓国と並んで石炭の純輸入国に、一方、モンゴルとロシアは、この地域の潜在的な石炭供給国になりつつある。従って、中国並びに北東アジア市場への石炭の輸出拡大に向けて、モンゴル政府は国内の主要な石炭鉱床と近隣諸国とを結ぶ鉄道開発事業を開始した。

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