



The Indonesian advantage

Over 80% of global primary energy demand depends on fossil fuels – oil, coal and gas in that order. Already close to 30% of world primary energy, and more than 40% of the world's electricity, comes from coal. In addition, about 66% of the world's steel is produced using coal. Coal is gaining again in importance and the current period is sometimes referred to as the Renaissance of steam coal (Figure 1). The growing world population and increasing electrification will drive energy demand. In their reference scenario, the IEA predicts that 84% of energy demand growth until 2030 will have to be met by fossil fuels – mainly coal – despite the growing importance of renewables.

Today, about 6 billion tpa of coal are produced, of which about 630 million t of steam coal are traded seaborne internationally. This volume is divided into the Atlantic market (about a third of global steam coal trade), with Europe as the main consuming region, and the Pacific market (about two thirds of global steam coal trade), with Japan, South Korea, Taiwan, China and India as the main consuming markets. Today, the growth in coal trade is centred on the Pacific market, which is supplied by Indonesia, Australia and Russia.

Asia's consumption

The traditional buyers of coal in Asia have been Japan, South Korea and Taiwan. They historically accounted for

about 40% of global steam coal imports and almost 60% of Asian imports. In 2008/09, the imports into India and China increased dramatically, mainly served by Indonesia (Figure 2).

China will also import more coal in upcoming years, but exact volumes are difficult to predict. For instance, in January 2010, China increased its imports from Indonesia by another 10% year-on-year to almost 9 million t. It is expected that China will continue to be a net importer, mostly of Indonesian coal, with some from Russia and Australia.

India, despite its own large reserves, will increase imports to 100+ million t within a few years, importing mostly from Indonesia and South America. The country is projected to add

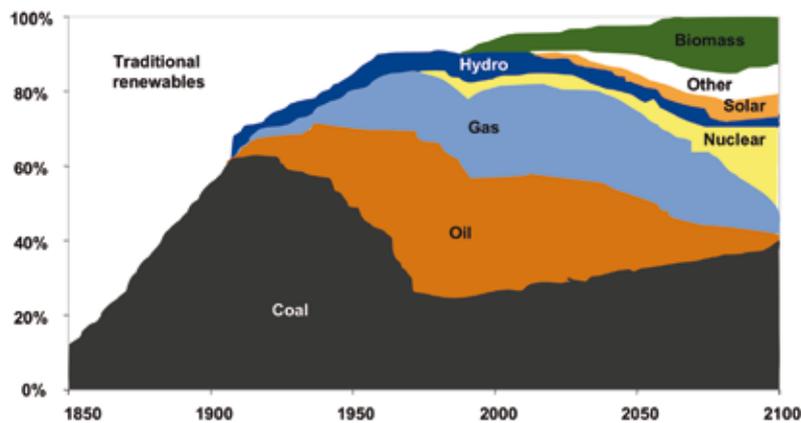


Figure 1. World primary energy mix: scenario 2100. The oil and gas age will soon end, leaving room for a second small coal age.

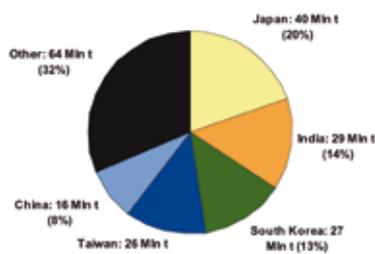


Figure 2. Indonesia's exports (2008).

78,000 MW of power by 2012, which will result in an additional coal demand of about 125 million t. This increased demand has to be covered mostly by imports. Power demand is expected to rise from 147,000 MW now to 950,000 MW by 2030.

Another sleeping giant in terms of imports is Vietnam. Some industry experts forecast that the country will import approximately 80 million tpa from 2015 onwards. Vietnam still exported 24 million t in 2009, mainly to China, but it is expected that these exports will cease within two years driven by Vietnamese domestic demand.

Overall, steam coal demand growth will be centred in Asia. As Indonesia lies in its geographical centre, it will benefit most from this growth. But, as with all coal exporting nations, Indonesia's export capacity may not grow as easily as it has been, or can it?

Indonesia's coal industry: a brief history

Indonesia's coal industry is very young, especially when compared to

the coal industries of Australia, the US, the UK, Germany, China or India. Except for state-owned PT Bukit Asam, Indonesia's major coal producers only started serious exploration work in the mid-1980s. A little over two decades ago, in 1988, Indonesia's entire coal production totalled less than 5 million tpa. Today, over 240 million tpa are produced, of which about 200 million t are exported.

To attract foreign investment and expertise, Indonesia decided to use its Contract of Work concept also for coal. Starting in 1981, the first generation Coal Contracts of Work (CCoW) were signed. Today, six of the first 10 CCoW companies still comprise two-thirds of Indonesia's production and exports (Adaro, KPC, Kideco, Arutmin, Indominco and Berau). These coal pioneers chose Kalimantan over Sumatra for production, mainly because of logistical advantages (two days less sailing time to Japan and other East Asian customers) and higher calorific value, lower sulphur and lower ash coal qualities. Second generation CCoWs lasted for only one year (1994) and created three producers that are still significant today (Jorong, Trubaindo, and Mandiri Inti Perkasa).

KPs, smaller domestic mining operations, also developed and are the reason why, today, there are over 400 active Indonesian coal producers. By 1999, about 11% of the 79 million t produced came from KPs.

Production in Indonesia grew at an impressive average 29% / year between 1988 and 1999, and continued to grow

at a slower 11% / year between 2000 and 2008. In 2006, Indonesia became – for the first time – the world's largest steam coal exporter, surpassing Australia. This achievement is highly impressive, especially given the following:

- First generation CCoW ownership was shifted to local entrepreneurs.
- Indonesia was experiencing considerable political instability as it struggled to transition from Soeharto's Government.
- The Asia-Pacific region was struggling with the after-effects of the Asian Financial Crisis and follow-on economic shocks caused by SARS and the Bird Flu.

The coal reserves and resources of Indonesia were significantly updated as recently as in 2006 (about 12 billion t of reserves and 93 billion t of resources). While any data about coal reserves and resources in Indonesia is still not very reliable, it is directionally correct. The data indicates that about 45% of reserves (25% of resources) are lignite with <5100 kcal/kg gad, about 35% of reserves (60% of resources) are sub-bituminous with 5100 – 6100 kcal/ kg gad, and about 20% of reserves (15% of resources) are bituminous with heating value above 6100 kcal/kg gad. Kalimantan alone accounts for over 80% of all proven reserves.

Indonesia's economic advantage

Geographic location

Indonesia has three major advantages over competing coal exporters. Most important, and already briefly addressed, is the country's geographical location, resulting in short sailing times to the key importers Japan, South Korea, Taiwan, China and India. For the emerging importers, China and India, this is particularly important. At the time of writing in February 2010, for instance, the freight from Indonesia to India was almost US\$ 10/t lower than from South Africa to India. Considering import prices to India of about US\$ 90 – 110/t for higher quality coal, this difference alone can account for 10% of the landed cost.

Low FOB cost structure

Second is the low mining cost, or better FOB cost structure, in Indonesia. Figure 5 illustrates Indonesia's FOB cost advantage over all other export nations. Despite the rather dated data, the trend remains the same today. Driven by geology, and even more so the short distances from the mines to the export ports, Indonesia is the most cost competitive coal export nation in the world. The authors predict that larger and newer mines may even increase productivity further by selectively considering continuous mining methods and further improving on hauling operations. Second tier producers in particular still have a lot of improvement potential.

Export port infrastructure

The third major advantage of Indonesia is connected with export port infrastructure. Today, Kalimantan accounts for about 90% of all coal produced in Indonesia. The island does not have any deep sea nearby and is therefore perfectly suited for offshore loading operations via floating cranes or with geared vessels from barges. This fact alone removes one major infrastructure constraint faced by countries such as Australia, South Africa or Russia.

Inland transportation capacity is also relatively easily constructed, with many barge ports along the rivers, as well as along the coast. It is expected that a barge port handling 2 – 3 million tpa can be built within nine months, assuming all licenses are in place. The coal is hauled via trucks, with rail infrastructure only slowly catching up. On a side note, the reliance on truck and shovel mining methods, and trucks and barges for inland transport, makes most Indonesian coal producers heavily reliant on diesel and exposes them to oil's price volatility.

However, in short, Indonesia is capable of easily scaling up its export infrastructure in line with production and demand.

The future of Indonesia's coal export market

To consider the future of any country's coal industry, one also has to study the

legal framework. Undoubtedly, Indonesia unfortunately counts as one of the less stable and legally secure countries of the world. Despite this insecurity, the country's coal producers have managed to successfully develop their operations. The CCoW scheme certainly built the foundation for Indonesia's success and it is now up to the new mining law and the new Izin Usaha Pertambangan (IUP) to continue this success. While there are a number of critical concerns about the new law (i.e., the limited license area, domestic market obligation, foreign divestment obligation, Indonesian mining service company obligation, etc), it is certainly considered an

important step to move to an internationally accepted permit system, instead of a Government-to-business contract system as with CCoW. For a more detailed discussion about the new IUP, please refer to the available publications on this matter.

A significant part of Indonesia's production growth will be driven by increased domestic demand, which is forecasted to triple within the next decade from its current 50 million t. The concern of the coal industry is that domestic market obligation (DMO) will upset export capacity. However, while Indonesia's PLN Crash Power Program, which aims to add 10,000 MW of new capacity by 2015,

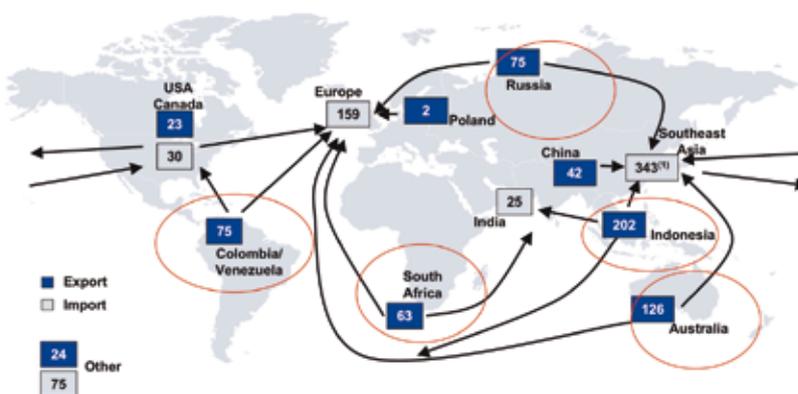


Figure 3. Trade flow of steam coal: 632 million t were traded in 2008. Where will future export growth come from?



Figure 4. Coal concessions in Kalimantan, Indonesia (source: Wilhelmsen Ships Service Indonesia).

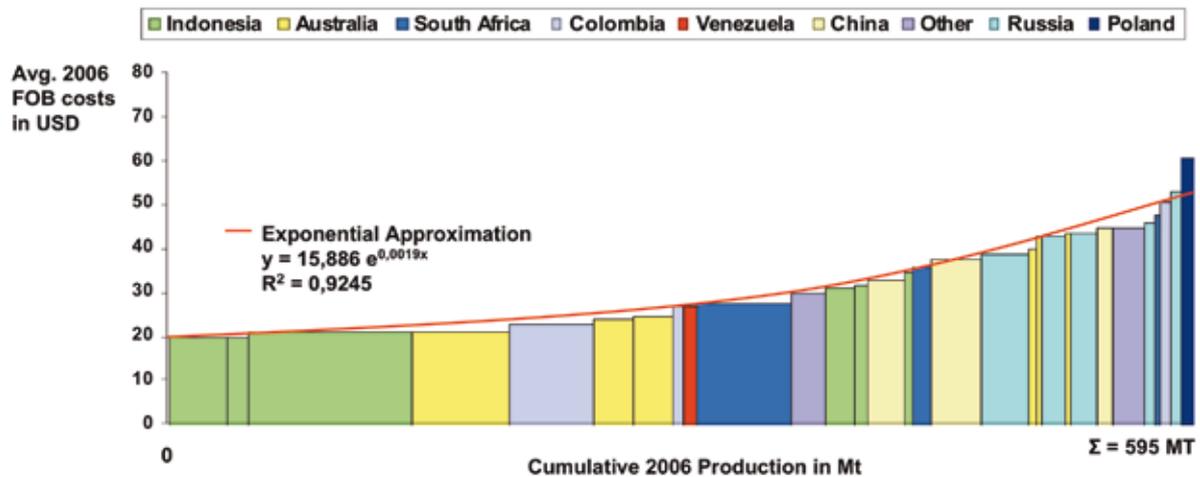


Figure 5. Indonesia's FOB cost advantages over other exporters.

will indeed take up large volumes of locally produced coal, this coal will be of low rank quality (typically below 5300 kcal/kg gad). Low rank coal reserves are huge and seam thickness can reach as much as 30 – 40 m.

There has been a lot of speculation about the limit of Indonesia's export growth and absolute production numbers. However, Indonesia has demonstrated that it can sustain

growth rates of 10%, 20% and even almost 30% for many years. The large producers have production growth plans that would surpass most western coal expert's imagination. The authors therefore believe that Indonesia is on track to produce 300 or even 400 million t within the next decade. The bulk of the growth will come from so-called low rank coal, making it possible for exports to continue

growing, though maybe not at the same rate as they have been. 

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