



OPINION

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The Southeast Asian Coal Market – the Next Success Story?



CA | Lucky Ebenhaezer

Southeast Asia

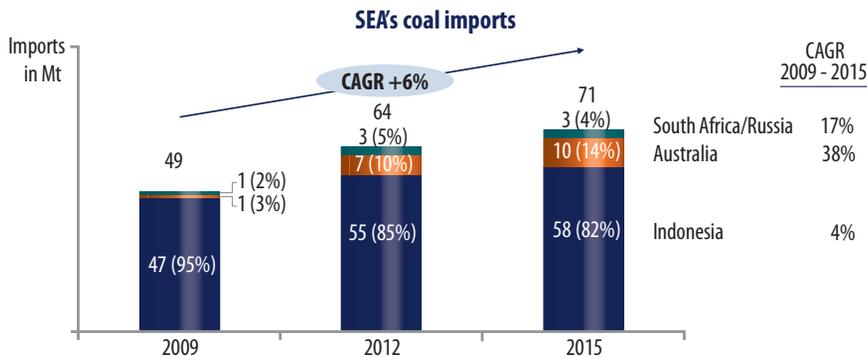
The five biggest coal importers in the world in 2016 were India, China, Japan, South Korea, and Taiwan. But what about Southeast Asia (SEA)? While the big five made up almost 70% or over 600 Mt of global imports, the SEA market accounted for only less than 8% or about 70 Mt of coal imports during the same period (Figure 1). The region is economically

named ASEAN but relevant for coal are primarily Thailand, Malaysia, Philippines, Vietnam, and Indonesia. Even though Indonesia is the biggest coal exporter, its domestic coal requirements are expected to impact the Asian demand and supply balance significantly in the coming decade by increasing its own demand.

The IEA reported (see Reuters 2015): “Electricity is increasing its share in

total energy consumption and coal is increasing its share in power generation”, said Laszlo Varro, head of the gas, coal and power markets division for the IEA. The vast majority of the 400 GW in power generation capacity to be added in Southeast Asia by 2040 will be coal-fired. That will raise coal’s share of the Southeast Asian power market to 50% from currently about 32%, while natural

Figure 1: Southeast Asian steam coal imports, growth and origins



Note: Data estimated for steam coal and subbituminous coal; SEA imports 2009-2015 include Thailand, Malaysia, Philippines, and other Asia but excludes Vietnam or Indonesia
 Source: Schemnikau and Perret Associates, i276

gas declines to 26% from currently about 44%.

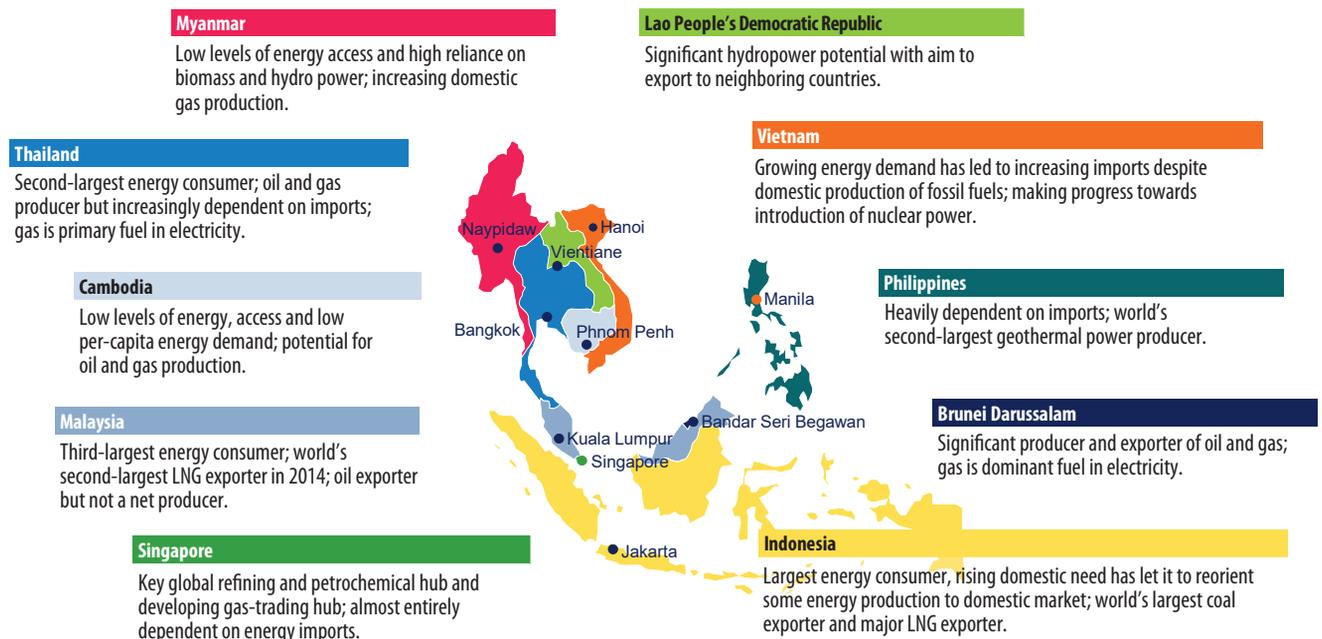
The 10 ASEAN (Association of Southeast Asian Nations) countries combine the richer Singapore, Malaysia, Indonesia, Brunei, Thailand, and the Philippines with the poorer developing nations Vietnam, Laos, Myanmar,

and Cambodia (Figure 2). About 620 million people live here and the region is expanding quickly, especially in terms of energy demand and as a result electricity generation. IEA Southeast Asia 2015 predicts that population grows modestly to 760 million people by 2040 but urbanization increases from 46%

today to 60% until then. The GDP per capita will almost triple until 2040, and this is where energy demand has to step in. As a result of this soaring energy demand, environmental pressures are increasing. The Asian economies and a significant portion of the Asian population at large often lack the environmental understanding and concern that the Western world has developed, pointing out however, that the West had much more time to do so. At the same time, the carbon foot print of SEA is only a fraction of that of Europe and the US (however, I would like to point out that I have the contrarian opinion based on scientific study that man-made CO2 does not negatively effect our climate but rather increase plant growth. As such the carbon foot print is actually not relevant).

The IEA predicts that in Southeast Asia alone about 120 million people lack electricity entirely while over 270 million

Figure 2: Energy overview of Southeast Asia



Source: Schemnikau 2016 based on IEA World Energy Outlook Special Report 2015: Southeast Asia Energy Outlook, i275

rely on polluting wood and dung for cooking and heating. “From 2013 to 2030, the IEA continues, the region’s primary energy demand will almost double or increase by at least 80%.” The “power pie” or electricity demand increases from 790 TWh to 2.210 TWh from 2013 to 2040. That tripling in electricity demand will be primarily sourced from coal. Renewables will expand but are growing slower than thermal coal-fired power generation. Coal will be the fuel of choice. The material is easily available, the cheapest source of power and also the safest. All major SEA countries are constructing coal-fired power plants at a breath-taking pace.

Figure 3 illustrates the current forecast for SEA. Coal’s share for electricity generation is expected to increase from about one third today to reach 50% by 2040. This means that the SEA will pull up the global average for coal use and be a significant reason why coal continues to power the world. Again, renewable, including hydro will also grow but the staggering increased power

demand cannot be met economically without the use of easily available, low-cost and safe coal.

Today, the key importers in the region are Thailand, Malaysia, and the Philippines. While Vietnam already appeared on the map in 2016, Myanmar will play a bigger role in the near future. Indonesia, due to its logistical advantage, supplies over 80% of the demand for the region (Figure 1). We can safely assume that this will continue. However, Australia has started to put its focus more on SEA as Chinese import demand has begun to decline. Fierce competition, even from South Africa and Russia and at times Chinese exports, will make the life difficult for Indonesian exporters, especially in times of low freight rates like last year.

I briefly summarize below some key facts for the four main future coal importers in SEA: Thailand, Malaysia, the Philippines and Vietnam. Other SEA countries such as Cambodia, Laos, and Myanmar are also expanding its coal burn

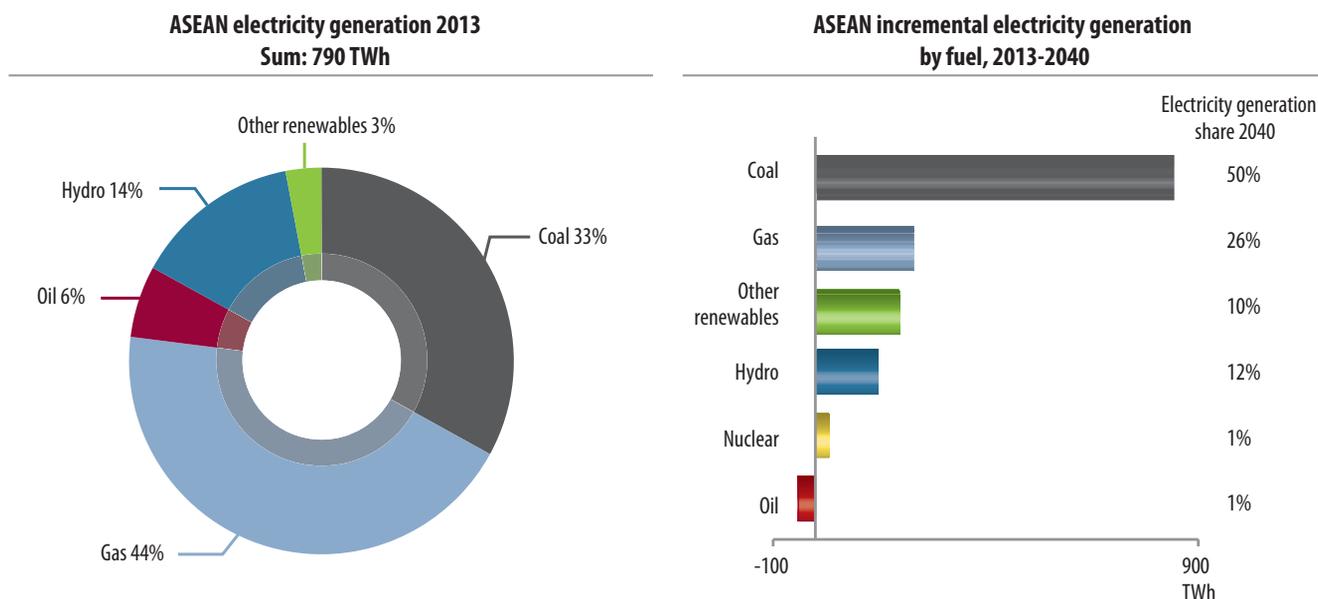
but are not detailed further here. All of Southeast Asia will increase its coal burn not only in absolute terms but also in relative terms and as a result pull up the world average coal share for electricity generation.

Thailand/Myanmar

Thailand, officially the Kingdom of Thailand formerly known as Siam, has a GDP PPP/capita of Int\$ 15,580 and electricity consumption per capita of 2,465 kWh (IMF 2014). The country with a population of about 67 million has struggled politically in the past years. The military junta seized power on 22 May 2014 which ended in the election of Army Chief and General Prayut Chan-o-cha as prime minister on 21 August 2015. This coup took place after two years of political crisis in the country that also affected the economy which contracted during much of 2014.

As per TNB-Surani 2014, Thailand currently heavily relies on gas for the country’s power generation (total

Figure 3: Southeast Asian coal-fired power generation increases to 50% by 2040



Note: Other renewables include solar PV, wind, and geothermal; electricity generation is forecasted to reach 2.210 TWh by 2040
 Source: Schemnikau 2016 based on IEA World Energy Outlook Special Report 2015: Southeast Asia Energy Outlook, i275b

installed capacity of 33 GW). About 70% of the country's power is generated using gas sourced primarily from Myanmar. EGAT Electricity Generating Authority of Thailand, Thailand's largest government-owned power company, generates about 45% of Thailand's power. Less than 10% of power is generated using coal. EGAT's assistant governor for power plant construction, Wiwat Chanchnernpanich, cited uncertainty over gas supplies given that Thailand's domestic reserves are set to run out around 2020 and Myanmar, Thailand's principal supplier, reserves most of its gas for its own use.

Going forward, the country will increase its renewable capacity but primarily coal-fired power as a safe and stable supply of electricity. Plans are in place to construct a total of 4.5 GW of new coal-fired power until 2030. In addition to Thailand's power demand, the country imports coal for its cement production as well as for household distribution and use. There are a number of private coal importers serving these markets which probably make up a large portion of total imports. In 2016, Thailand's total coal imports added up to about 22 Mt with about 19 Mt being supplied from Indonesia.

Note on Myanmar: In 2014, Myanmar has 4.4 GW installed capacity and only 20% of its citizens are connected to the grid, according to the Ministry of Electric Power. The Ministry estimates that an additional 24 GW are needed until 2030 to sufficiently power the country.

In 2015, the Myanmar government has overhauled its own mining law to make it more international investor friendly. While the law fell short of expectations, Myanmar mining may now compete with Indonesia for international funds as Indonesian mining investor protection and support is still limited.

Malaysia

Malaysia achieved independence from post-war British-led Allies in 1957 and Singapore left the former Malaya. Northern Borneo provinces Sarawak and Sabah also belong to the Union. Malaysia has had one of the best economic records in Asia since its independence. GDP grew at an average of 6.5% p.a. for almost 50 years from 1957 to 2005. Even today, Malaysia is growing at around 6% p.a. and remains one of the largest palm oil exporters. The country also continues to net-export petroleum products with Petronas (government-owned Petroliaam Nasional Berhad), famous not only for the Petronas towers in Kuala Lumpur.

Malaysia has a GDP PPP/capita of Int\$ 24,500 and electricity consumption per capita of 4,345 kWh (IMF 2014). The 30 million inhabitant strong country is the most advanced nation of the ASEAN after Singapore which is exemplified by the fact that its per capita power consumption is about 80% above that of Thailand and six times of Indonesia. The country supports an efficient national utility called Tenaga Nasional Berhad (TNB) which is also Southeast Asia's largest utility.

TNB-Surani 2014 summarized the power generation mix of TNB consisting of about 47% coal and 49% gas in 2014, installed capacity of Malaysia totals about 25 GW, of which approximately 8 GW are coal. TNB itself forecasts that coal will not only grow absolutely with growing electricity demand but also relatively. By 2020, coal's share will go up to 63% at the expense of gas, which falls to 33%. Malaysia imported over 26 Mt in 2016, two thirds from Indonesia, one quarter from Australia and the rest from South Africa. In 2016, TNB alone imported 23 Mt. Given the power demand growth coupled with Malaysia's higher coal share,

imports are predicted (not only by TNB) to reach over 40 Mt by 2020.

Philippines

The Republic of the Philippines consists of 7,100 islands and has a GDP PPP/capita of Int\$ 6,975 and electricity consumption per capita of 670 kWh (IMF 2014). The country is significantly less developed than Malaysia and Thailand but is on a growth path with electrification rising and standard of living increasing. The 12th largest country in the world by population of approximately 100 million is powered by 18.5 GW (2014 updated numbers) total installed capacity of which only one third was based on coal. The government will increase this share significantly.

The country has a total installed capacity of about 16-17 GW, of which 5.6 GW were coal. Now 3.4 GW of new coal-fired power plants are already under construction and are planned to be finished by 2018 (10 plants) and an additional 25 plants totaling 12 GW are planned. Of course, the Philippines will also add renewable capacity in the coming decades, but as of today the cheaper and more reliable energy source coal is favored. As a result, the country's coal consumption will easily increase from currently about 20 Mt to about 35-40 Mt by 2025-2035. Of this demand, today over 10 Mt are imported and 9 million domestically produced. Again, due to its geographic proximity, Indonesia supplies the vast majority of the imported coal. In the future, it is expected that the Philippines will become a 30 Mt import market.

Semirara Mining and Power Corp. (SMPC) is the only local coal miner and at the same time the domestic power utility. The company increased its domestic coal sales from previously 3 Mt to about 6 Mt in 2015 up to 9.5 Mt in 2016. This tripling of output indicates the increasing domestic

coal demand from both power and cement markets. The Philippines estimates its coal resources at about 2.4 Bt, enough to further expand domestic production.

Vietnam

The Socialist Republic of Vietnam is strategically located on the Eastern side of the Indochina peninsula in Southeast Asia. Historically, Vietnam was part of China for over 1,000 years in the first millennium. Following the French colonial rule and later the Vietnam War from 1955 to 1975 and communist ruling, the country has opened up and has witnessed among the world’s highest economic growth rates since 2000. Until today, Vietnam is one of the world’s four remaining single-party socialist states officially espousing communism, along with China, Cuba, and Laos. Today’s GDP PPP/capita reaches approximately Int\$ 5,650 and electricity consumption per capita was 1,270 kWh (IMF 2014).

The 90 million people-strong nation became a well-known anthracite exporter for its consistent and often very high quality. Today, the country’s coal exports and imports are a function of its ever increasing power demand. Vietnam’s power demand is forecast to grow

continuously at over 10% for the next two decades rising from about 170 TWh in 2015 up to 615 TWh in 2030 (compare Germany at approximately 630 TWh today). Indigenous gas and imported coal will compete for the top spot of providing the resource for electricity generation. Vietnam will also introduce nuclear power and build up its renewable capacity. However, here the fuel of choice going forward is also coal. At the same time one should not discard Vietnam’s own gas resources, which are very large. In 2015, PetroVietnam purchased Block B in South Vietnam from Chevron and the development of this field could provide a lot of the required power. However, Vietnam’s energy policy is not clear yet which way to go. I personally support the general industry view that Vietnam’s reliance on coal imports will grow substantially as illustrated in Figure 4.

Vinacomin, or **Vietnam National Coal-Mineral Industries Holding Corporation Ltd**, is the country’s largest coal producer and government-owned, accounting for about 95% of domestic production. The key reserves are in the North of Vietnam, close to the Chinese border in the Quang Ninh province. Historic and future coal production is estimated to reach about

40 Mt annually, primarily of anthracite quality. The mining takes place in 22 open cast and 30 underground mines. The prognosis for Vietnam varies. Of the total installed power capacity of 26 GW about 6 GW were based on coal in 2013. There are some reports that up to 39 GW of coal-fired power capacity will be in place by 2020, which would result in 100-110 Mt annual coal consumption, thus requiring 60-70 Mt of coal imports. I personally believe this is vastly exaggerated. The IEA’s view illustrated in Figure 4 gives a good estimate. About 15 GW of coal will be added by 2020 and the 2030 installed capacity could reach 75 GW, which is still a very large jump from current numbers. It may be that Vietnam will import 20-40 Mt annually in the next 10-20 years. Looking forward up to 2040, 100 Mt imports are possible. Today, Vietnam is the world’s third largest builder of coal-fired power stations. I still expect that these very optimistic projections will be reduced over time but all in all there will be significant growth out of Vietnam.

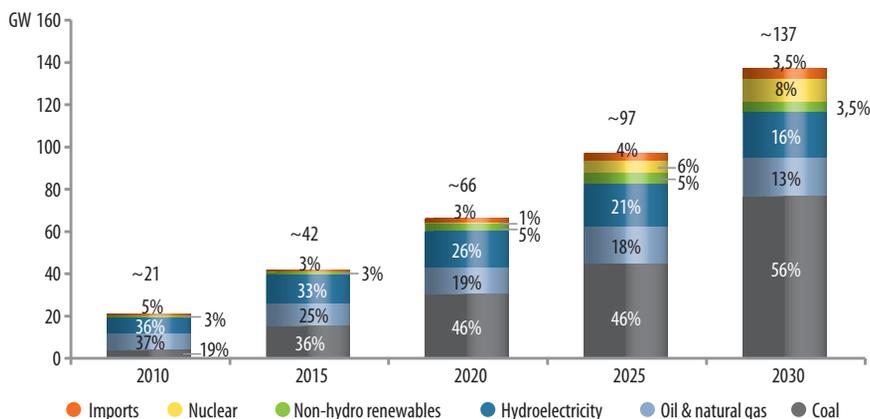
2016 imports are estimated at around 13 Mt, growing from 7 Mt in 2016 and only 3 Mt in 2015. In early 2017, imports dropped again. Primary supply in 2016 was sourced from Australia (4 Mt), Russia (3.8 Mt), and Indonesia (3.2 Mt). The country most likely became a net coal importer for the first time in its history. 2016 coal exports reached less than 10 Mt down from 20 Mt in 2010.

Vietnam is another example how coal demand for power generation will increase not only absolutely but also relatively in the next decades, and as a result pulling up the world average.

Indonesia

The Indonesian domestic coal demand situation is another complex subject that deserves more space than just the few sentences herein. During

Figure 4: Overview Vietnamese electricity generation capacity (2010-2030)



Note: Hydroelectricity includes pumped storage

Source: International Atomic Energy Agency; EIA US Energy Information Administration 2013: Vietnam Country Nuclear Power Profile, i277



2015-2019, Indonesia is targeting an economic growth of 6-7% annually. This is a realistic number but at the same time requires power consumption growth of about 8% p.a. Total Indonesian power consumption is expected to reach 334 TWh in 2020, up from about 174 TWh in 2012. In summary it is obvious that Indonesia's own power consumption requires larger amount of coal in the coming decades.

In conclusion, the Southeast Asian coal market remains an interesting one to watch over the next years. The region is driven by the diversity of business cultures national backgrounds. Traders and producers are eying the region but they are

also increasingly becoming aware of the challenges of doing business here.

About the author:

As a co-founder, shareholder and former member of the supervisory board of the German-based, publicly listed, international coal trading, logistics and mining companies HMS Bergbau AG and IchorCoal NV, Lars has founded, worked for and advised a number of companies in the coal and energy sector in Europe, Asia and Southern Africa. Today he oversees the development of HMS Bergbau's coal marketing and operations in Asia, Africa and Europe.

Lars obtained his PhD in economics of the global coal business and published

"The Renaissance of Steam Coal" in 2010 and "Why Coal Continues to Power the World" in 2016. This article is updated from his latest book. 

List of Selected Sources:

Schernikau 2016, Springer Book "Why Coal Continues to Power the World"; **Perret Associates; Reuters (2015)**; Various articles published from Reuters, exact source will be mentioned Reuters 2015; **IEA Southeast Asia (2015)**; IEA Southeast Asia Energy Outlook 2015; **IMF (2014)**, International Monetary Fund GDP Data; **TNB – Surani (2014)**; Malaysia's Coal Demand; Noor Asihun Surani of TNBF.