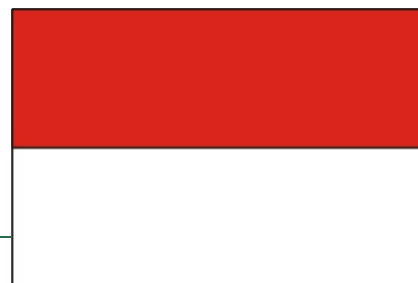


17 Indonesia



17.1 Summary of Coal Industry

17.1.1 ROLE OF COAL IN INDONESIA

Coal is a critically important export commodity for Indonesia. The country has 28 billion tonnes of recoverable coal reserves (EIA, 2014a). Indonesia produced more than 440 million tonnes (Mmt) of coal in 2012 (see Table 17-1). Coal production has increased dramatically over the past several years, increasing by more than 250 percent since 2005 (EIA, 2014b). Continued growth in coal production is attributable to growing international demand, as well as rising domestic electricity consumption (EIA, 2014b). Indonesia is the world's largest exporter of coal by weight. Exports are primarily to India and China, but also to South Korea, Japan, and Taiwan (EIA, 2014b).

Coal provided for 48 percent of Indonesia's electricity generation capacity in 2012 (EIA, 2014b). Power plants consume almost all, or 99 percent, of coal in Indonesia, and cement plants and metallurgy consume the remainder (Sihite, 2012).

Table 17-1. Indonesia's Coal Reserves and Production

Indicator	Anthracite & Bituminous (million tonnes)	Sub-bituminous & Lignite (million tonnes)	Total (million tonnes)	Global Rank (# and %)
Estimated Proved Coal Reserves (2011)	0	28,017	28,017	10 (3.2%)
Annual Coal Production (2012)	442.8	0	442.8	4 (5.6%)

Note: Numbers may not add due to rounding
Source: EIA (2014a)

Coal is found in 11 distinct basins on the four major portions of the archipelago that comprise Indonesia (Figure 17-1). The province of Sumatra contains 49 percent of Indonesia's total coal reserves and Kalimantan contains 47 percent, with the balance located in Riau, Jambi, and Bengkulu as shown in Table 17-2. However, most production (90 percent) takes place in Kalimantan, which has higher quality coal deposits (US Embassy, 2000; Gushka, 2013).

Table 17-2. Indonesia's Coal Reserves by Province (2011)

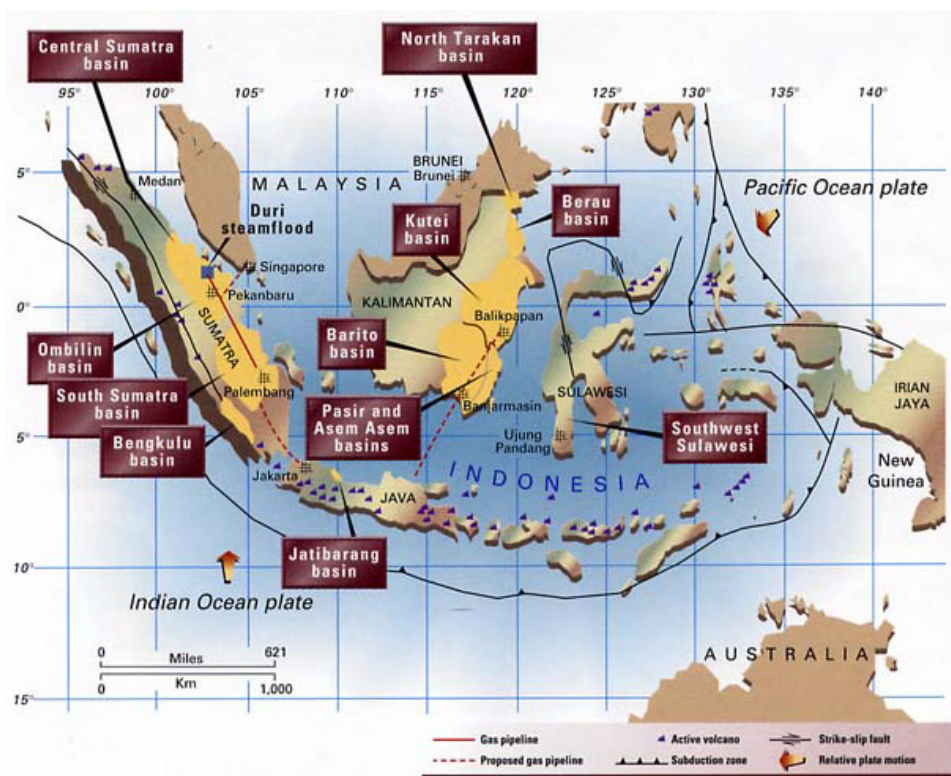
Province	Resources			Total	Reserves
	Inferred	Indicated	Measured		
Banten	5.75	4.86	2.72	18.80	0.00
West Java	0.00	0.00	0.00	0.00	0.00

Table 17-2. Indonesia's Coal Reserves by Province (2011)

Province	Resources			Total	Reserves
	Inferred	Indicated	Measured		
Central Java	0.82	0.00	0.00	0.82	0.00
East Java	0.08	0.00	0.00	0.08	0.00
Nanggroe Aceh Darussalam	346.35	13.40	90.40	450.15	0.00
North Sumatra	7.00	0.00	19.97	26.97	0.00
Riau	168.05	626.38	948.05	1,755.27	645.67
West Sumatra	294.50	231.16	249.45	800.06	158.43
Bengkulu	17.86	104.08	71.21	208.30	19.02
Jambi	656.90	699.08	443.50	1,990.32	351.65
South Sumatra	14,508.95	14,808.82	10,026.59	59,254.35	13,625.22
Lampung	106.95	0.00	0.00	106.95	0.00
West Kalimantan	477.69	6.85	4.70	489.24	0.00
Central Kalimantan	1,838.50	808.28	704.89	3,549.25	577.42
South Kalimantan	3,833.53	3,344.05	3,481.66	10,659.24	3,778.04
East Kalimantan	13,276.66	6,282.62	8,004.19	40,665.00	8,861.90
South Sulawesi	48.81	129.22	53.09	231.12	0.12
Central Sulawesi	1.98	0.00	0.00	1.98	0.00
North Maluku	0.00	0.00	0.00	2.13	0.00
West Irian Jaya	32.82	0.00	0.00	126.41	0.00
Papua	2.16	0.00	0.00	2.16	0.00
TOTAL	35,625.36	27,058.79	24,100.42	120,338.60	28,017.46

Source: ESDM (2012)

Figure 17-1. Indonesia’s Coal Fields



Source: Stevens et al. (2001)

17.1.2 STAKEHOLDERS

Coal mine operators in Indonesia include state-owned enterprises, private national companies, and foreign mining companies (USGS, 2007). The major coal producers are listed in Table 17-3.

Table 17-3. Indonesia’s Major Coal Producers

Operators	Annual Capacity (2012) (million tonnes)
PT Kaltim Prima Coal (Bumi Resources)	36.0
PT Adaro Indonesia	35.0
PT Arutmin Indonesia (Bumi Resources)	20.0
PT Tambang Batubara Bukit Asam	19.0
PT Bayan Resources Tbk.	15.0
PT Indominco Mandiri (Banpu Indonesia)	14.8*
PT Berau Coal	13.0
PT Kideco Jaya Agung	12.0
United Tractors	6.5

Sources: USGS (2014); *Indonesia-Investments (2014)

Other key stakeholders involved with the coal industry, the coal mine methane (CMM) and coal bed methane (CBM) industries are listed in Table 17-4.

Table 17-4. Key Stakeholders in Indonesia’s CMM Industry

Stakeholder Category	Stakeholder	Role
Developer	<ul style="list-style-type: none"> ▪ British Petroleum ▪ CBM Asia Development Corp. ▪ Dart Energy ▪ Eni ▪ ExxonMobil ▪ Newton Energy Capital Ltd. ▪ Nu Energy ▪ Pertamina ▪ PT Energi Mega Persada Tbk. ▪ Santos ▪ Ephindo ▪ Total ▪ See http://www.epa.gov/coalbed/networkcontacts.html 	Project opportunity identification and planning
Engineering, Consultancy, and Related Services	<ul style="list-style-type: none"> ▪ See http://www.epa.gov/coalbed/networkcontacts.html 	Technical assistance
Government Groups	<ul style="list-style-type: none"> ▪ Ministry of Energy and Mineral Resources (Kementerian Energi Dan Sumber Daya) ▪ Directorate General of Mineral and Coal ▪ Directorate General of Oil and Gas (MIGAS) ▪ Special Task Force for Upstream Oil and Gas Business Activities (SKK Migas) 	Licensing

Source: CBM Asia (2013)

17.1.3 STATUS OF COAL AND THE COAL MINING INDUSTRY

Since transitioning to a democracy beginning in the late 1990s, Indonesia’s central government has been ceding greater autonomy to regional coal administrators. The central government maintains ownership of coal and associated methane gas, but mine permitting may be done at the central or local government level, depending on whether the mine crosses provincial boundaries (Asia Law, 2009). The government formerly contracted directly with private companies for mine operations; however, the 2009 Mining Law (Law No. 4 of 2009 on Mineral and Coal Mining) replaces the previous “Contract of Work” system with a license-based permitting system that operates through a tender process instead of the former direct application. Licenses are royalty-based, with rates varying based on the size of the mining operation (Platts, 2014). Foreign companies may obtain coal licenses in Indonesia; however, according to regulations enacted in 2010 and 2013, foreign shareholders must progressively divest its shareholding to a minority stake over time, eventually divesting a 51-percent share to Indonesian ownership by year 10 (Scott and Tan, 2014).

Most of Indonesia’s coal production comes from surface mines; however, underground mining is on the rise due to environmental concerns and has been identified as an investment opportunity by the Ministry of Energy and Mineral Resources (Pamerindo Indonesia, 2014; Gushka, 2013). Additionally, some mines such as the mine site of PT Gerbang Daya Mandiri located in Kutai Kertanegara, East Kalimantan have started as surface mines and moved operations underground (Karian et al, 2013).

Coal production is expected to continue to rise in Indonesia to meet export and domestic electricity demand. Indonesia has identified a number of objectives and investment opportunities to further the growth of its coal industry. The 2009 Mining Law applied domestic market obligations which require coal and mineral producing companies allocate a certain minimum percentage of total production to the domestic market (Hogarth and Nawangsari, 2010). Due to value-added requirements imposed by the 2009 Mining Law, all mineral ores are to be processed in Indonesia before being exported; thus, Indonesia is encouraging investment in areas of gasification, liquefaction, and coal blending and upgrading (Scott and Tan, 2014; Gushka, 2013). A number of mine mouth power plant projects are underway, with plans for additional plants to meet domestic electricity demand.

17.2 Overview of CMM Emissions and Development Potential

The Global Methane Initiative (GMI) International CMM Projects Database currently identifies no CMM recovery projects in Indonesia, in operation or development (GMI, 2014).

17.2.1 CMM EMISSIONS FROM OPERATING MINES

With increased coal production, CMM emissions in Indonesia have increased as well. Table 17-5 summarizes Indonesia's CMM emissions.

Table 17-5. Indonesia's CMM Emissions (million cubic meters)

Emission Category	2000	2005	2010	2015 (projected)
Total CH ₄ emitted	71.1	158.4	282.6	309.6

Source: USEPA (2012)

17.2.2 CMM EMISSIONS FROM ABANDONED COAL MINES

No information about CMM from abandoned mines in Indonesia is available at this time.

17.2.3 CBM FROM VIRGIN COAL SEAMS

Indonesia's government promotes exploration of CBM and shale gas, alongside conventional crude oil and natural gas projects. The Ministry of Energy and Mineral Resources estimates that the country has CBM reserves of 12.8 trillion cubic meters based on preliminary studies (EIA, 2014b). The Minister of Energy and Mineral Resources authorized the Directorate General of Oil and Gas (MIGAS) to develop CBM in Indonesia (US Embassy, 2000) and in 2007, the Indonesian government started awarding CBM blocks in the South and Central Sumatra basins on Sumatra Island and the Kutei and Barito basins in East Kalimantan (see Figure 17-2).

The Sanga-Sanga CBM block in East Kalimantan was contracted to Virginia Indonesia Co., LLC (VICO), a subsidiary of BP plc. and ENI S.p.A., in November 2009, and commercial CBM production commenced in 2011 (CBM Asia, 2013; VICO, 2014). CBM from this block is used to generate power, providing electricity for 2,500 homes in Borneo (SKK MIGAS, 2013).

Singapore-based Dart Energy and Indonesian PT Energi Pasir Hitam began CBM exploration activities in East Kalimantan in 2013, with the goal of supplying both power plants and the Bontang liquefied natural gas (LNG) facility (CBM Asia, 2013).

As of 2013, 54 production sharing contracts (PSC) had been signed with the Indonesian government for CBM production (Sirait, 2013). The government anticipates CBM production to reach over 5 billion cubic meters/year by 2020 (EIA, 2014b).

Figure 17-2. Indonesia’s CBM Basins



Source: CBM Asia (2012a)

Table 17-6 summarizes Indonesia’s CBM resources.

Table 17-6. Indonesia’s CBM Resources

Province	Basin	Prospective Area (km ²)	CBM Resources (trillion cubic meters)
South Sumatra	South Sumatra	7,350	5.18
South Kalimantan	Barito	6,330	2.88
East Kalimantan	Kutei	6,100	2.26
Riau	Central Sumatra	5,150	1.5
East Kalimantan	North Tarakan	2,734	0.5
East Kalimantan	Berau	780	0.24
Bengkulu	Bengkulu	772	0.10
South Kalimantan	Pasir/Asem	385	0.085
South Sulawesi	Sulawesi	500	0.060
West Java	Northwest Java	100	0.023
West Sumatra	Ombilin	47	0.014
TOTAL		30,248	12.8

Source: Stevens and Hadiyanto (2004) via CBM Asia (2012a)

17.3 Opportunities and Challenges to Greater CMM Recovery and Use

Indonesia is a signatory to both the UNFCCC and the Kyoto Protocol. As a Non-Annex I Party to the Kyoto Protocol, Indonesia has no national emissions targets and was eligible to host mitigation projects under the Clean Development Mechanism (see Table 17-7).

Table 17-7. Indonesia's Climate Change Mitigation Commitment

Agreement	Signature	Ratification
UNFCCC	June 5, 1992	August 23, 1994
Kyoto Protocol	July 13, 1998	December 3, 2004

Source: UNFCCC (2014)

17.3.1 MARKET AND INFRASTRUCTURE FACTORS

Indonesia is home to more than 3,600 miles of natural gas transmission and distribution pipelines; however, domestic distribution infrastructure is almost non-existent outside of Java and North Sumatra. Indonesia's geography presents a challenge to resource development and makes the switch to natural gas for domestic consumption more difficult; however, declining oil production and strong economic growth in Indonesia have led to increased domestic consumption of natural gas (EIA, 2014b). Roughly half of Indonesia's gas production was consumed domestically in 2012, with the other half being exported as LNG or through two pipeline connections to Singapore and Malaysia. Domestic consumption is expected to continue to rise as reliance on oil and diesel fall; pipeline exports will reportedly cease when contracts expire in coming years (EIA, 2014b; CBM Asia, 2012b). Indonesia's government has sought to meet increasing gas demand by increasing the country's regasification capacity. Indonesia began processing domestic LNG at its first regasification terminal, Nusantara, in West Java, which processes LNG supplied from Indonesia's Bontang and Tangguh plants. Indonesia is in the process of building additional regasification facilities (CBM Asia, 2012b). Indonesia also plans to import LNG. In December 2013, Indonesia signed its first gas import contract with a US firm starting in 2018 (EIA, 2014b).

17.3.2 REGULATORY INFORMATION

Coal and gas resources are owned by the State. Private companies wishing to extract resources are required to develop a PSC with Indonesia (Sirait, 2013). Production splits for oil and natural gas directed 60 to 80 percent of profits to the government and the remainder to the contractor. In 2003, production splits were adjusted to 65/35 for oil and 55/45 for gas (USGS, 2003). In 2007, the government announced that it would offer a 45 percent production split for CBM developments in order to encourage investors and support the need for unconventional gas supplies (CBM Asia, 2012b). As coal and mineral producers are required to meet domestic market obligations, so are gas producers – 25 percent of natural gas produced from production-sharing contracts in Indonesia must supply the domestic market (EIA, 2014b).

CBM contracts have the same terms as oil and gas contracts and are controlled by the Directorate General of Oil and Gas (MIGAS) (Reuters, 2007). Regulation No. 36 of 2008 on Business Undertaking of Coal Bed Methane is the current primary regulation for CBM development. Open areas are offered by tender or direct offer if proposed by a business entity. Under the regulation, oil and gas

contractors are given priority for CBM activities and are given a direct offer in areas where the oil and gas contractor has fulfilled a three year commitment. Existing coal concessions are given priority and coal contractors are given direct offers for CBM activities in areas where the coal contractor has been exploiting coal for at least three years. In areas of overlapping concessions, priority for CBM activities is given to the oil and gas operator (Sirait, 2013).

17.4 Profiles of Individual Mines

No mine profiles are available at this time for Indonesia.

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