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Outlook for the International Coal Market

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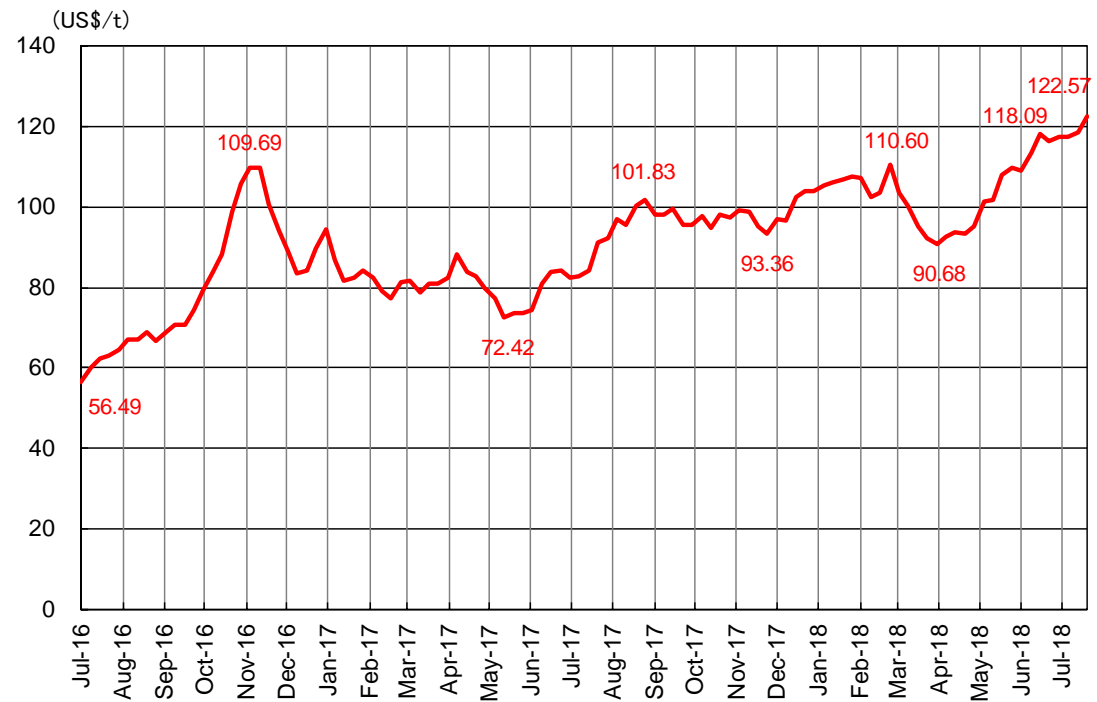
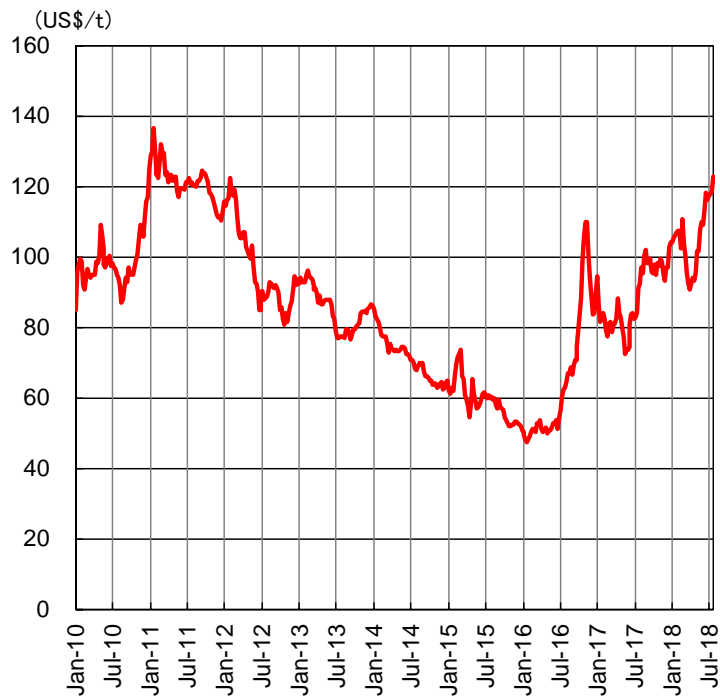
Key Points of this Report

- ✓ Coal prices remain elevated. However, as the coal market continues to see stable conditions quantitatively, prices will basically trend downward.
- ✓ Coal demand is declining, but increased slightly in 2017. In 2018 and 2019, coal demand will rise in emerging countries mainly in Asia (India, ASEAN, etc.) and coal imports, too, will grow.
- ✓ As for coal supply, there are plans to restart operations at idled coal mines and expansion plans for operating coal mines due to the market recovery (elevated prices), and also Colombia and Russia are now looking to expand supply to growing Asian markets.
- ✓ Weak prices (prices declined from 2011 to early 2016) have caused coal companies to dispose of assets, and coal industry reorganization is progressing.

Coal Prices (steam coal FOB)

- In early 2016 the spot price of steam coal saw an end to the downward trend in prices since 2011, thereafter the price was ranging between \$70/ton to \$110/ton due to factors in China mainly.
- Currently, the price has risen up to \$120/ton due to procurement for the peak summer demand season.

Spot prices of steam coal (as FOB price at Newcastle Port in Australia)

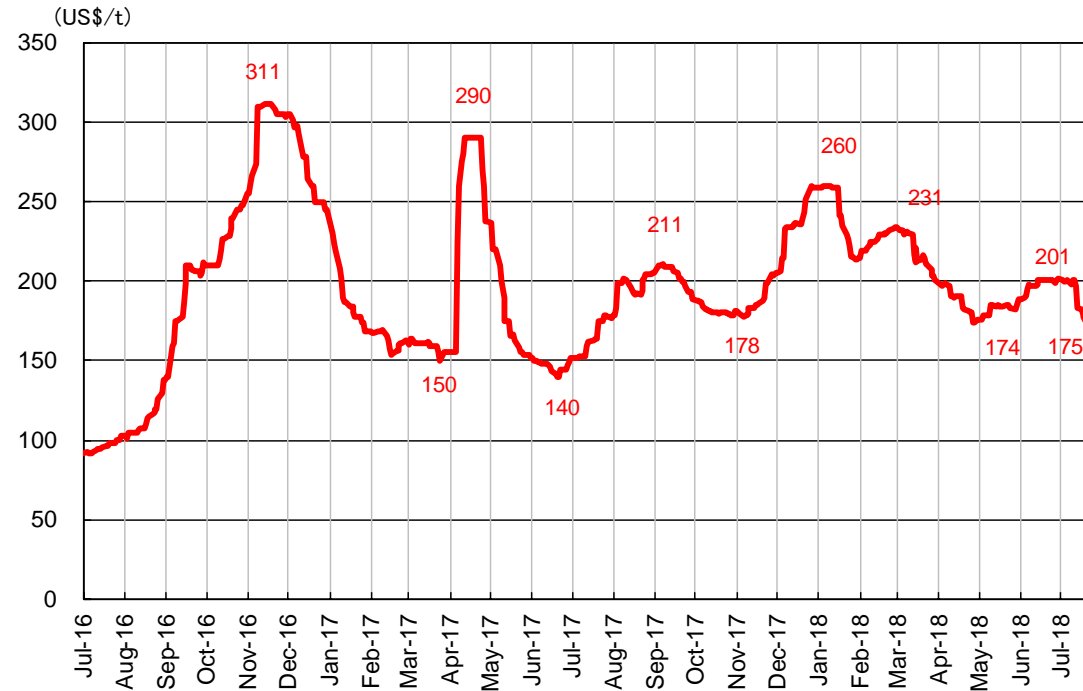


Source: globalCOAL

Coal Prices (Coking coal FOB)

- At the end of December 2015, the downward trend in the spot price of coking coal ended after persisting since 2011, and thereafter the price fluctuated violently by tight domestic supply-demand in China (autumn of 2016), natural disasters (cyclone that struck Queensland at the end of March 2017), the impacts of coal mine accidents and so on.
- In January 2018, prices reached \$260/ton amid rising imports in China and India, but later prices retreated back to \$174/ton. From mid-June prices trended at the \$200/ton level, but once again fell back to the \$170/ton range where they sit currently.

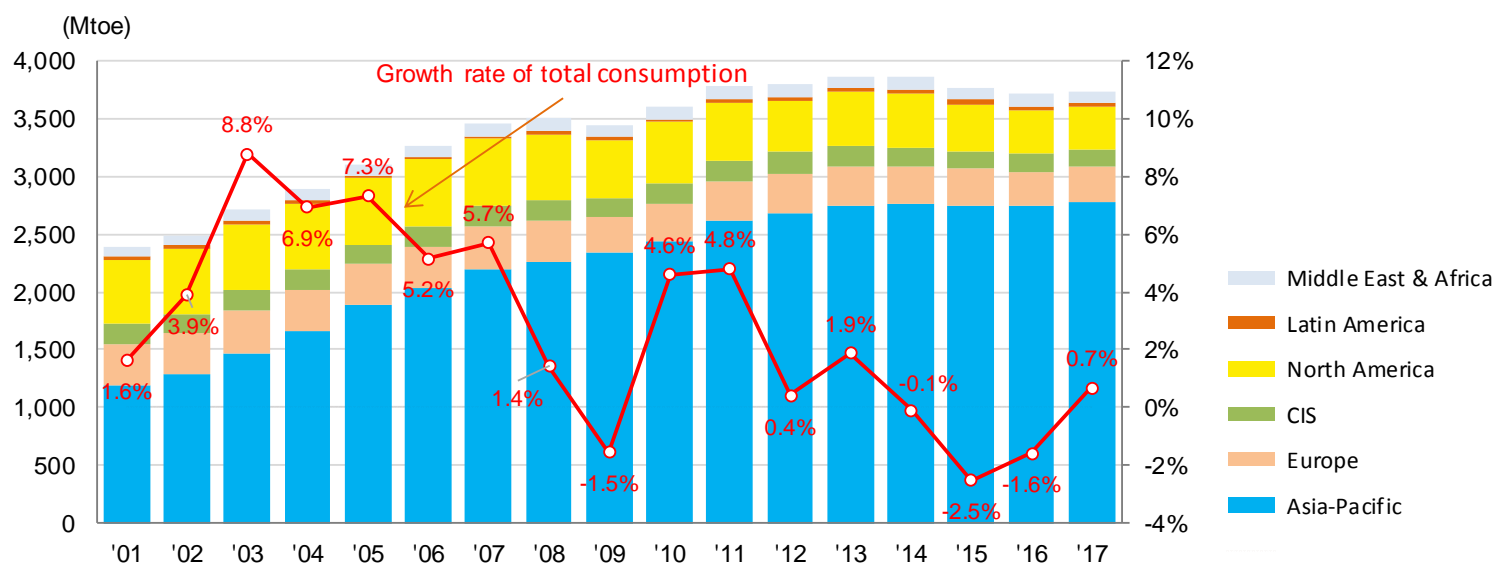
Spot prices of hard coking coal (Australian premium hard coking coal FOB)



Source: IHS

Global Coal Consumption Trends

- Global coal consumption increased in Asia mainly, but gradually slowed down, and declined in 2015 and 2016.
- Consumption increased slightly in 2017.

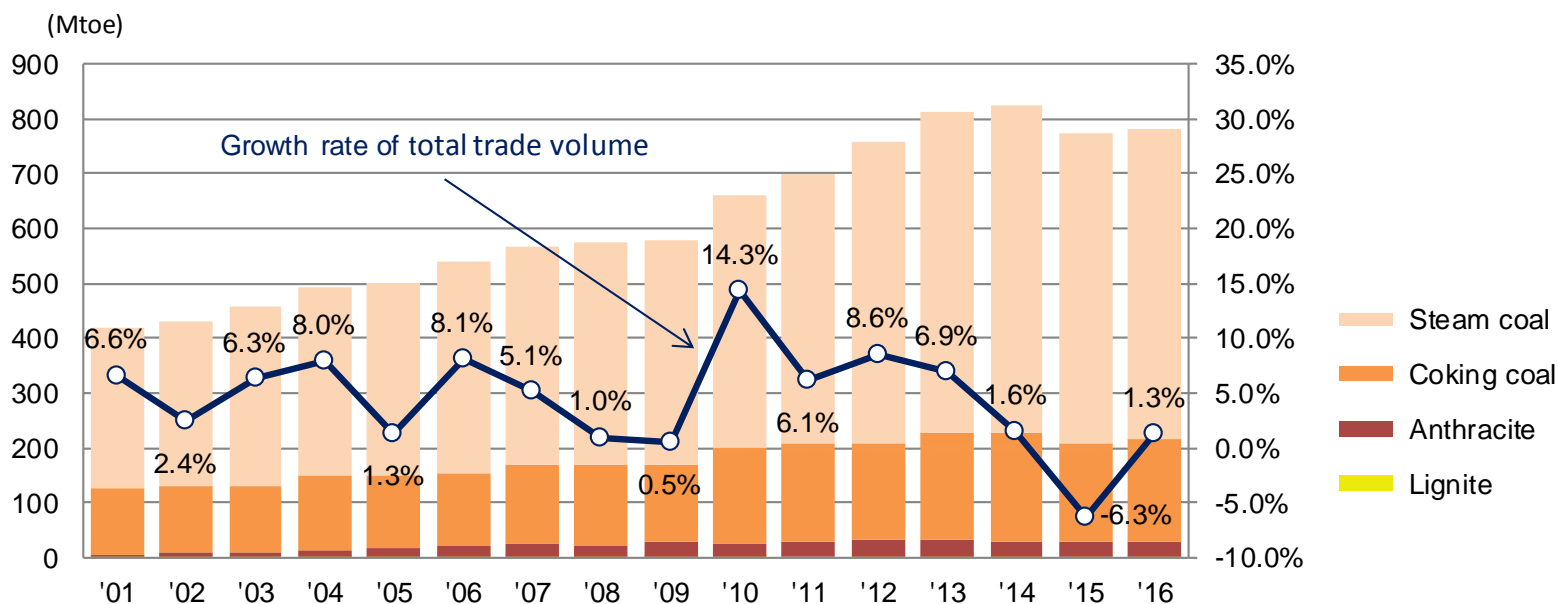


	Consumption (Mtoe)							Growth (%)				
	2012	2013	2014	2015	2016	2017	Change	13/12	14/13	15/14	16/15	17/16
Asia-Pacific	2,675.5	2,747.5	2,766.5	2,748.3	2,744.0	2,780.0	(36.0)	2.7	0.7	-0.7	-0.2	1.3
Europe	347.3	336.4	319.3	313.1	295.1	296.4	(1.3)	-3.1	-5.1	-1.9	-5.7	0.4
CIS	182.1	173.0	163.8	157.3	156.2	157.0	(0.8)	-5.0	-5.3	-4.0	-0.7	0.5
North America	449.9	465.4	463.2	404.8	371.9	363.8	(-8.1)	3.4	-0.5	-12.6	-8.1	-2.2
Latin America	31.6	34.3	35.9	36.2	34.9	32.7	(-2.2)	8.5	4.5	0.8	-3.7	-6.2
Middle East & Africa	107.9	108.7	113.4	105.4	104.0	101.5	(-2.4)	0.7	4.3	-7.1	-1.3	-2.3
World total	3,794.5	3,865.3	3,862.2	3,765.0	3,706.0	3,731.5	(25.4)	1.9	-0.1	-2.5	-1.6	0.7

Source: BP Statistical Review of World Energy June 2018

Global Coal Trade

- Global steam and coking coal trade saw growing along with increasing demand, but declined in 2015.
- Trade increased slightly in 2016 and it is expected to increase in 2017 as well.



	Trade Amount (Mtoe)						Growth (%)			
	2012	2013	2014	2015	2016	Change	13/12	14/13	15/14	16/15
Lignite	1.5	1.3	1.7	1.5	1.4	(-0.1)	-12.2	29.5	-9.4	-7.1
Anthracite	29.6	31.7	27.0	25.7	26.1	(0.4)	7.1	-15.0	-4.5	1.5
Coking coal	178.2	193.7	198.0	179.7	188.9	(9.2)	8.7	2.2	-9.2	5.1
Steam coal	550.0	585.2	598.0	566.0	566.2	(0.3)	6.4	2.2	-5.4	0.0
Total	759.4	811.9	824.6	772.9	782.7	(9.8)	6.9	1.6	-6.3	1.3

Note: Trade volume expressed by imports; 2016 represents provisional figures.

Source: IEA World Energy Balance 2017

Steam Coal Import/Export Trends of Major Importing/Exporting Countries (Regions)

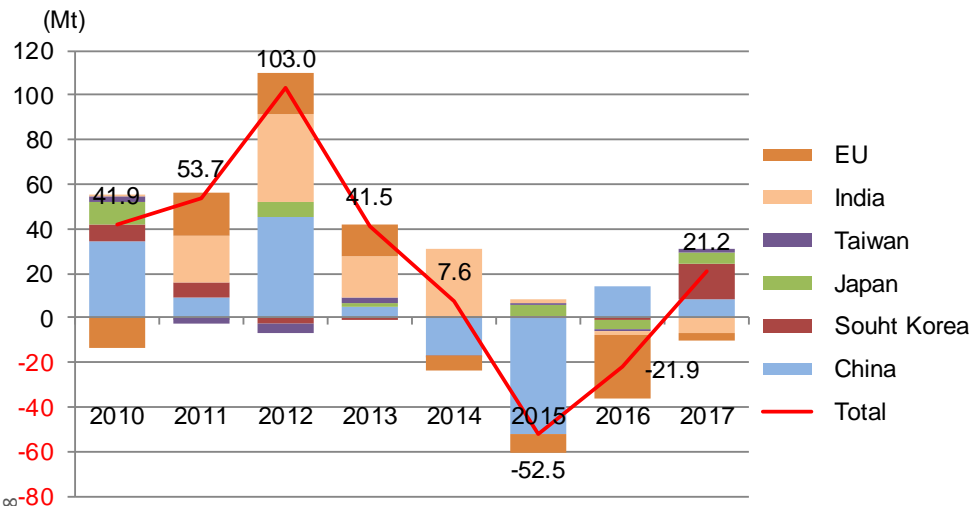
- Steam coal imports have been driven by China and India, but imports have declined in China since 2014, recovering in 2016 and 2017, and the rise in imports seen in India has ended since 2015.

In 2016 and 2017, imports in ASEAN (Malaysia, Vietnam, the Philippines) increased by 19 million tons and 12 million tons, respectively.

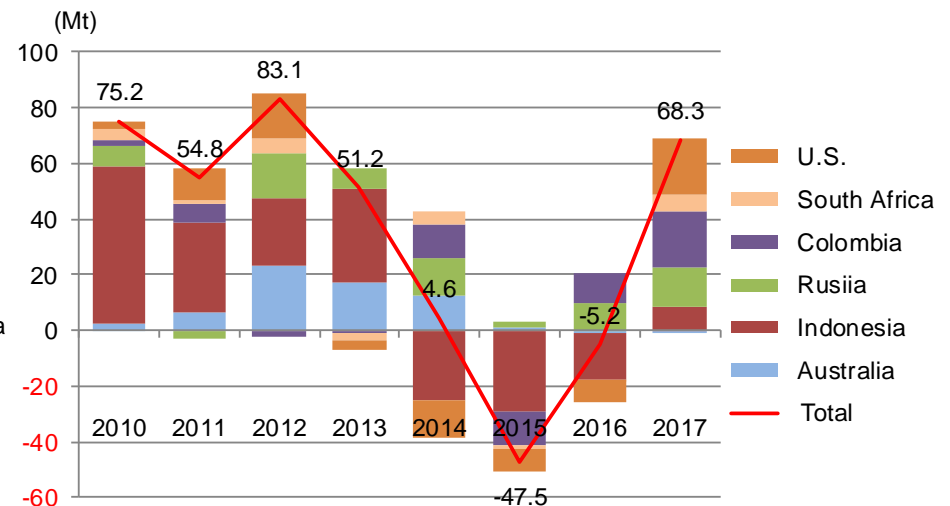
- Steam coal exports have increased mainly in Australia and Indonesia, but Indonesia has seen a large drop off in exports bound for China and India.

In 2017, exports increased mainly in the United States, Colombia and Russia.

Year-on-year import changes



Year-on-year export changes



Note: Trade volume expressed by imports; 2016 represents provisional figures.
Source: Trade statistics of each country and TEX Report, etc

Coking Coal Import/Export Trends of Major Importing/Exporting Countries (Regions)

- Coking coal imports mainly increased in China and India following a similar trend observed with steam coal.

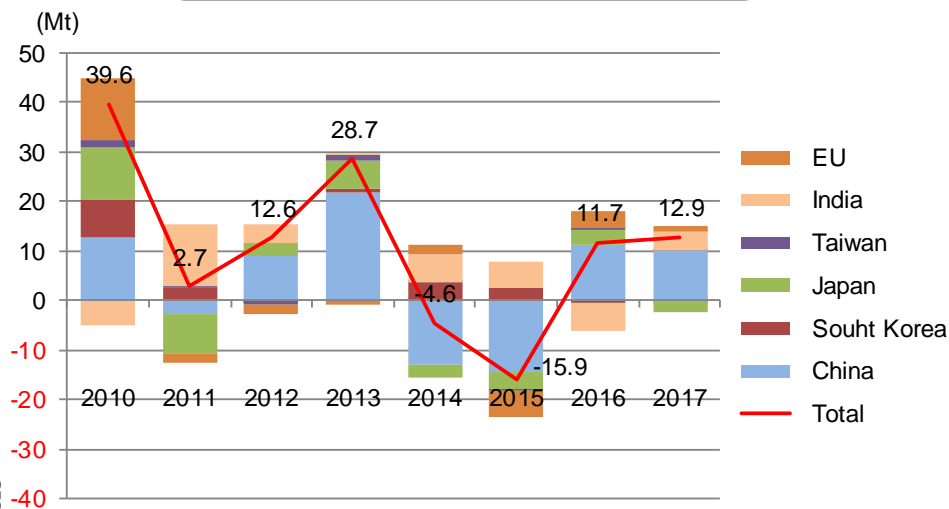
Imports in China declined in 2014 and 2015, but increased in 2016 and 2017, which has affected the market significantly (the main factor behind sharp price volatility).

- As for coking coal exports, Australia accounts for around 60% of total exports, and the country saw huge drop offs in exports in 2011 and 2017 due to natural disasters, etc.

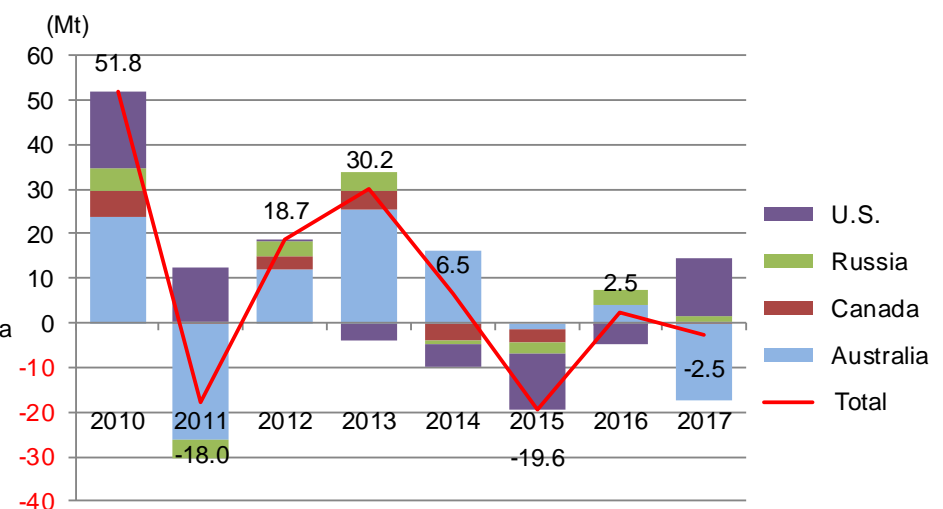
Exports in the United States (high FOB cost) tend to increase when prices are high.

In recent years, there have been growing exports from new sources in Mozambique and Mongolia.

Year-on-year import changes



Year-on-year export changes



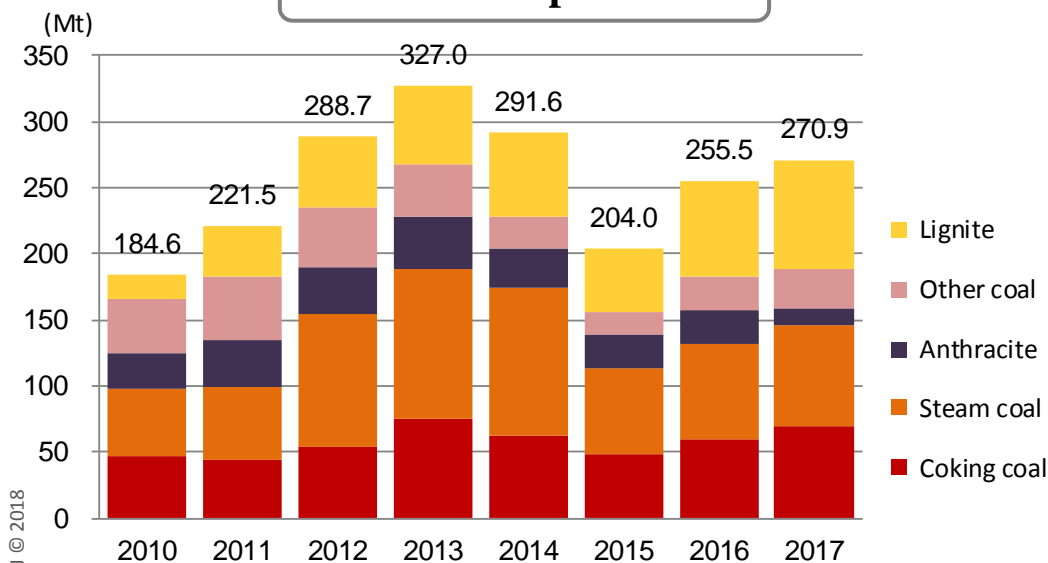
Note: Trade volume expressed by imports; 2016 represents provisional figures.

Source: Trade statistics of each country and TEX Report, etc

Coal Consumption, Production and Import Trends in China

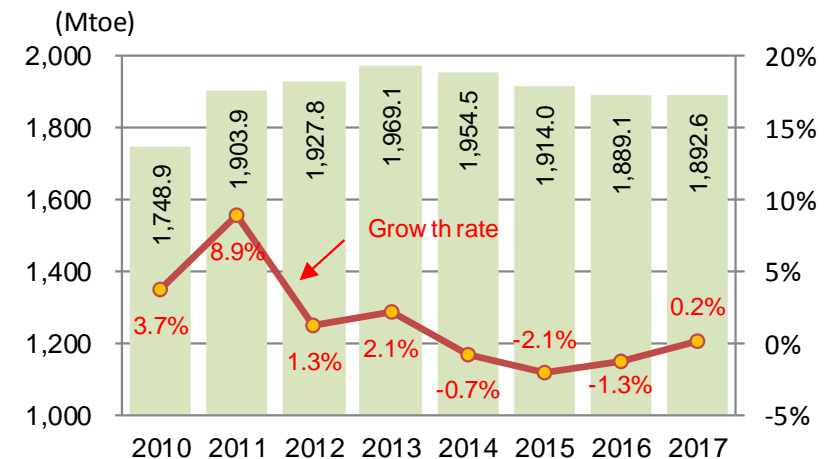
- Coal consumption was declining due to measures against air pollution, but increased slightly in 2017.
- Coal production was also falling (particularly dropping sharply due to production adjustments in 2016), but increased in 2017.
- Coal imports has been rising since 2016. Statistics for January to May 2018 show steam coal imports increasing year on year, but coking coal imports falling.

Coal imports



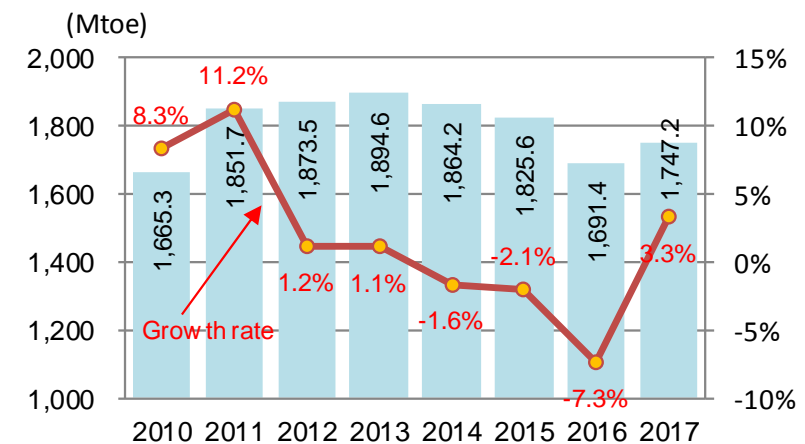
Source: TEX Report (original data based on China's customs statistics)

Coal consumption



Source: BP Statistical Review of World Energy June 2018

Coal production

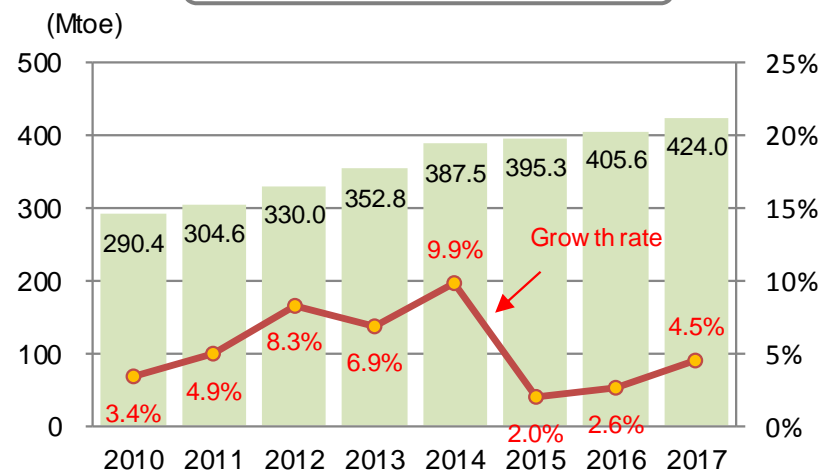


Source: BP Statistical Review of World Energy June 2018

Coal Consumption, Production and Import Trends in India

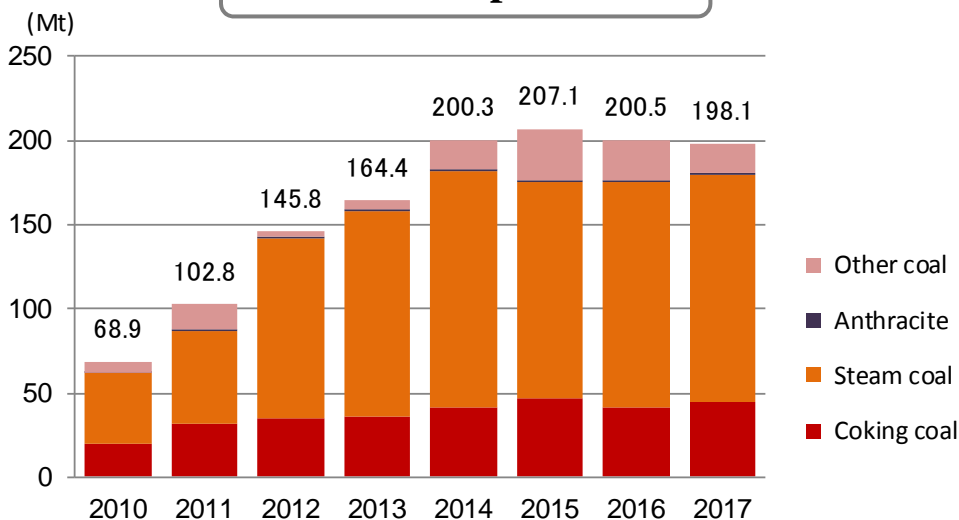
- Coal imports were rising strongly, but coal consumption growth moderated and policy to increase domestic coal use have caused imports to decline slightly since 2016.
- Coal production faced problems since autumn of 2017, causing imports to increase year on year.
- Steam coal imports will rise amid quality concerns, cost issues, and the start of operations at coal-fired thermal power plants fueled with imports.
- As for coking coal, domestic reserves is limited, and as a result imports will increase.

Coal consumption



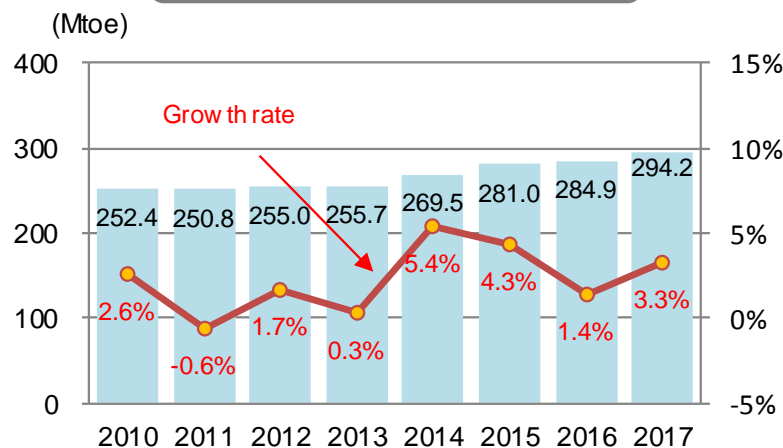
Source: BP Statistical Review of World Energy June 2018

Coal imports



Source: Ministry of Commerce and Trade

Coal production



Source: BP Statistical Review of World Energy June 2018

Coal Import Trends in Other Asian Countries

- Imports have grown in Malaysia, the Philippines, and Vietnam since 2016 due to the start of operations at coal-fired thermal power plants.

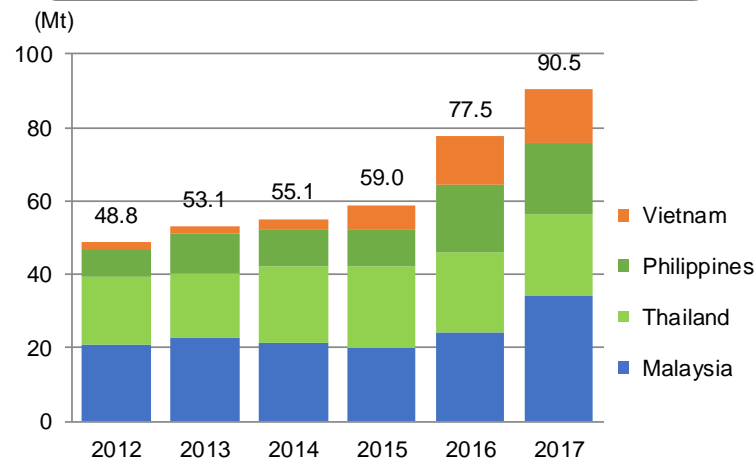
Imports should continue to increase looking ahead because of the start of operations at coal-fired thermal power plants.

- Imports in South Korea in 2017 increased substantially following the start of operations at coal-fired thermal power plants coupled with the reduction in generated output from nuclear power.

Looking ahead, imports in South Korea should remain unchanged, depending on nuclear power trends.

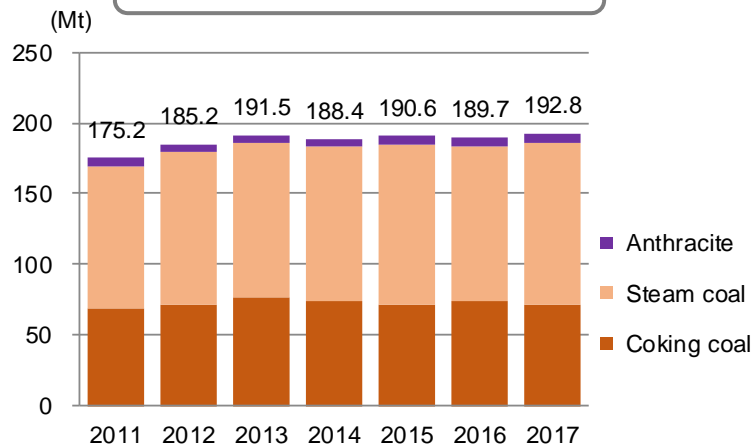
- Imports in Japan will remain flat going forward, too.

Major Importing Countries in ASEAN



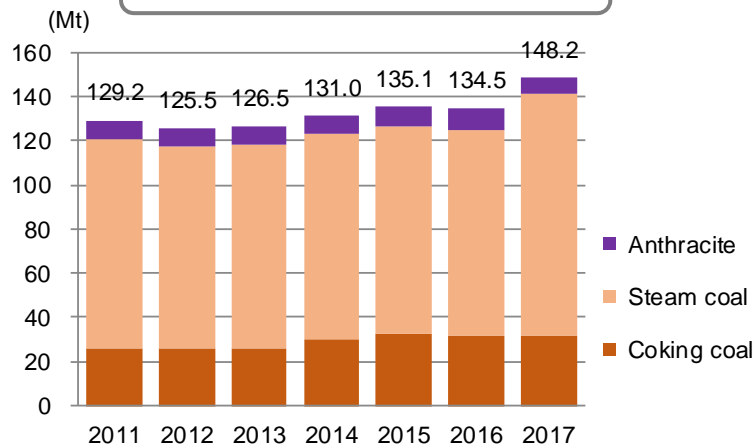
Source: TEX Report (based on trade statistics) and Taiwan's Bureau of Energy, Ministry of Economic Affairs.

Japan



Source: Trade Statistics of Japan

South Korea

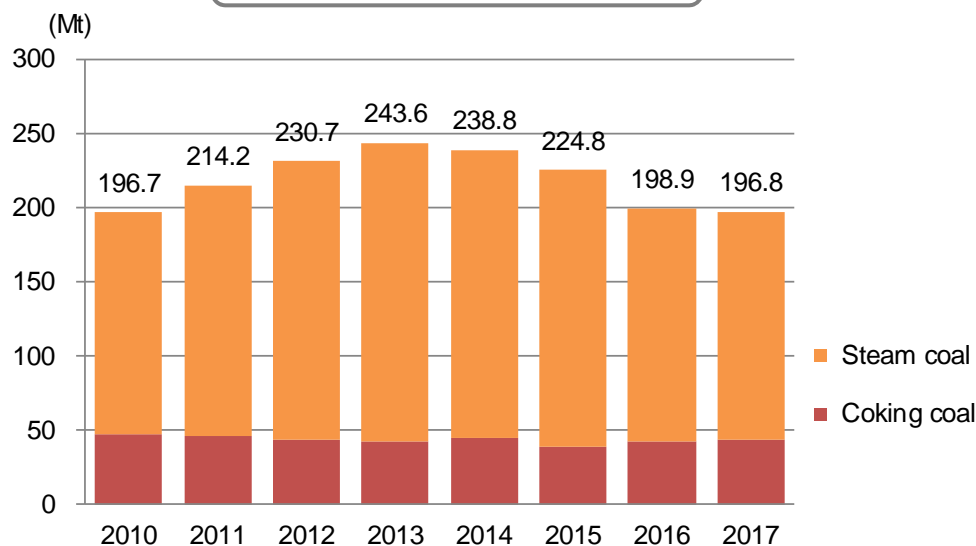


Source: TEX Report (based on South Korean trade statistics)

Coal Consumption, Production and Import Trends in Europe (EU's 28 member countries)

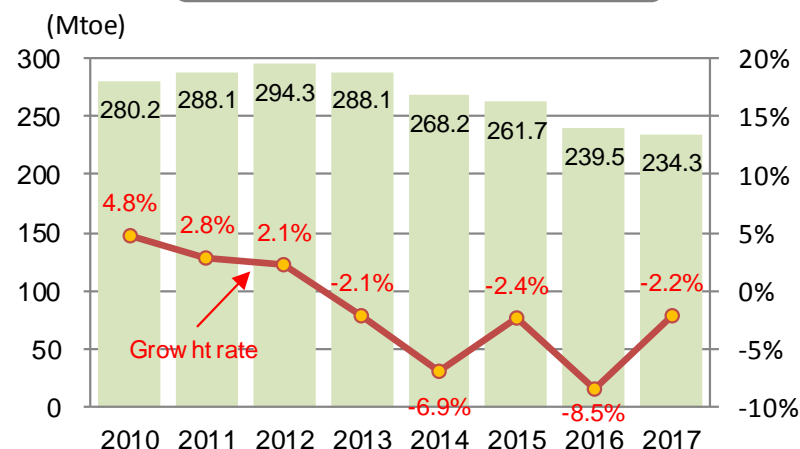
- Coal consumption, production and imports are declining due to the “coal phase-out,” but imports in 2017 remained level compared to the previous year.
- Looking ahead, consumption will decline, causing production and imports to fall as well.

Imports



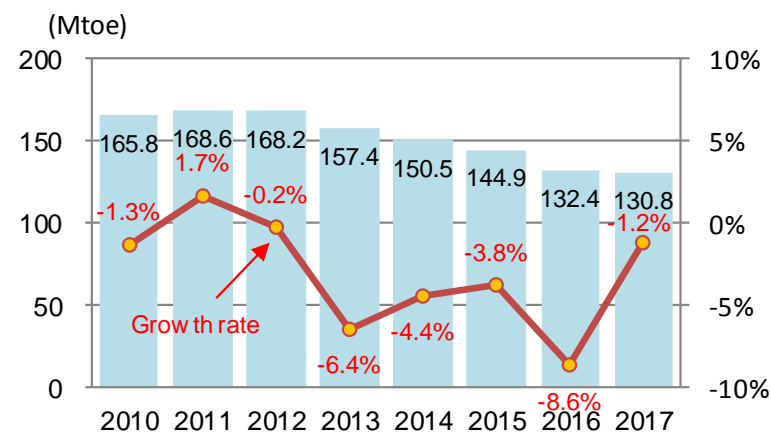
Source: EUROSTAT; 2017 represents IEEJ estimates.

Consumption



Source: BP Statistical Review of World Energy June 2018

Production

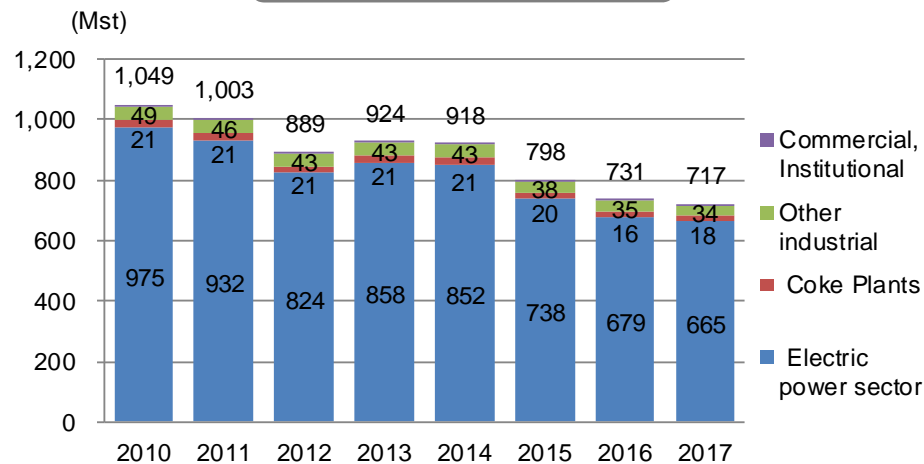


Source: BP Statistical Review of World Energy June 2018

Coal Supply-Demand in the United States

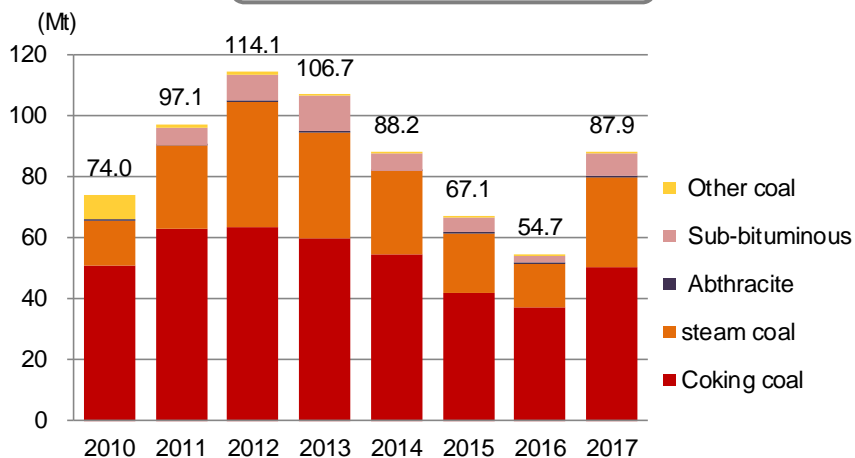
- Coal consumption, exports and production sharply declined up to 2016.
- In 2017, consumption continued to fall, but elevated prices caused exports to rise 33 million tons and increased production.
In particular, coking coal exports were up 15 million tons, covering the drop in Australia's exports.
- Exports for the January-to-May period of 2018 totaled 43.5 million tons, up 10 million tons over the previous year.

Consumption



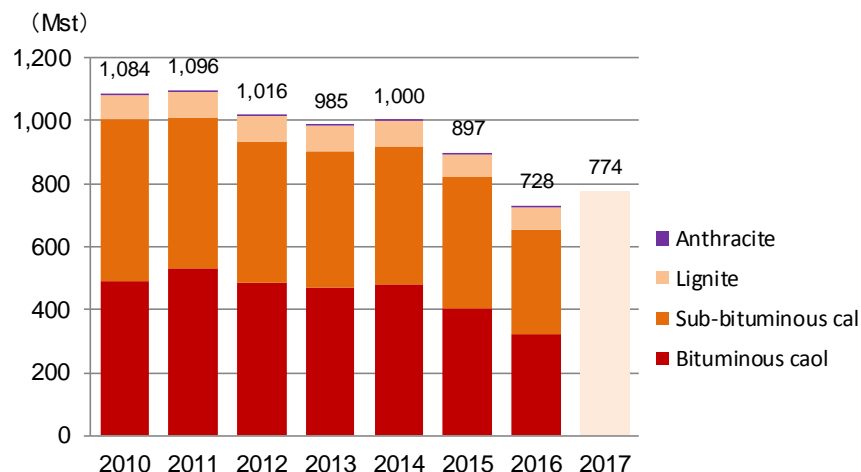
Source: EIA

Coal exports



Source: TEX Report (based on the United States' customs statistics)

Coal production



Note: Data for each type of coal has not been released for 2017.

Source: EIA

Indonesia's Coal Production and Exports

- Coal exports have declined since peaking in 2013 (exports bound for China and India have fallen dramatically).

However, exports increased slightly in 2017.

- According to Indonesia's production plan released in 2015, production will be cut slightly from 425 million tons in 2015 to 400 million tons in 2019.

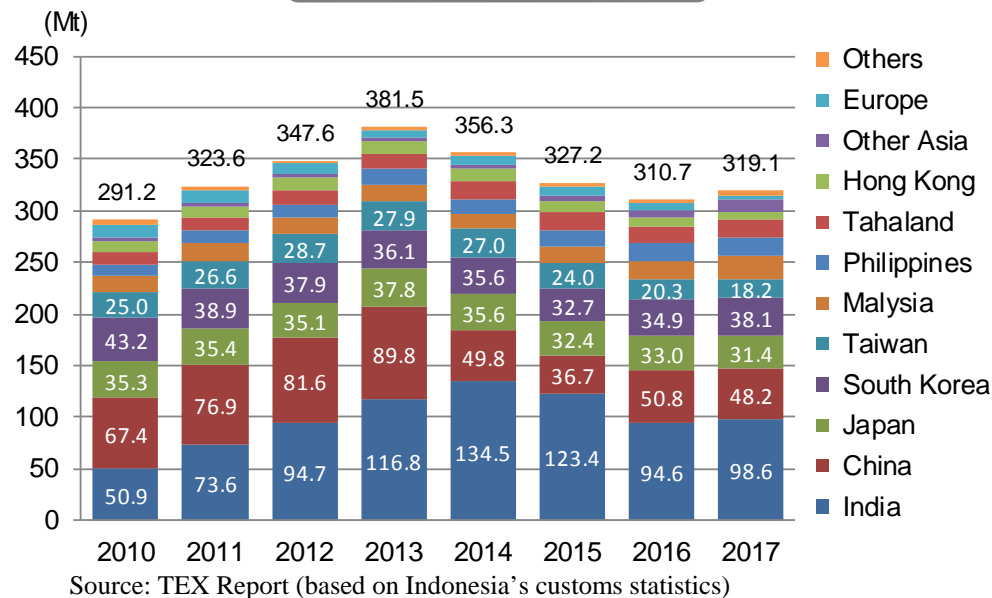
However, actual production is trending around 460 million tons, exceeding this plan.

In 2018, the country's production target is 485 million tons.

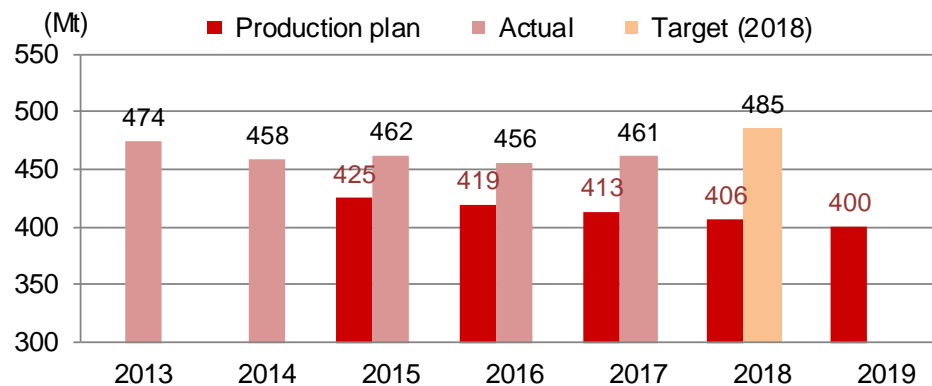
- The Government of Indonesia has not changed its policy to cap production in order to protect its coal resources and use them effectively. For this reason, exports will decline as domestic demand grows over the medium to long term.

However, there is little possibility of a dramatic fall off in exports for the time being.

Coal exports

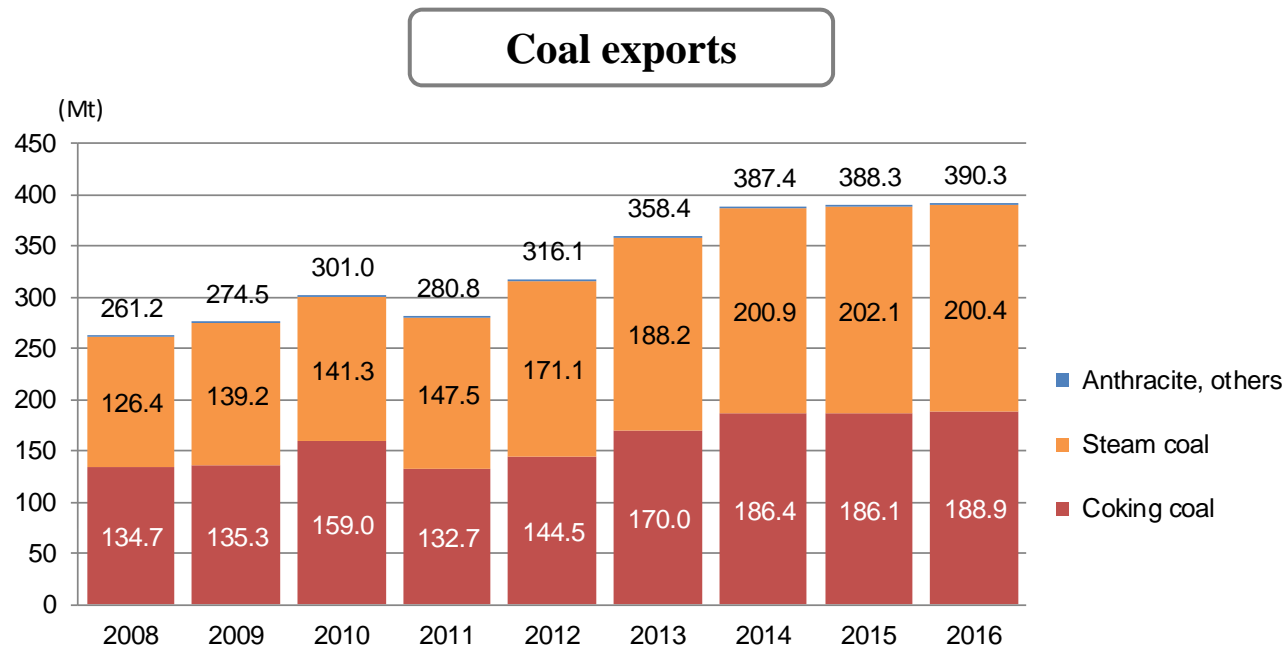


Coal production (plan and actual)



Australia's Coal Exports

- Exports steadily increased, with the exception of 2011 when Queensland suffered heavy rains, but have been flat since 2015 due to weaker demand for exports.
Exports declined in 2017 due to the cyclone that hit Queensland.
- The price decline that continued from 2011 to early 2016 caused coal producing companies to close or idle unprofitable coal mines and low productivity coal mines, and in some cases to dispose of coal assets (see next slide).
- In recent years, there are plans to restart operations at idled coal mines and expand operating coal mines based on improving market conditions.

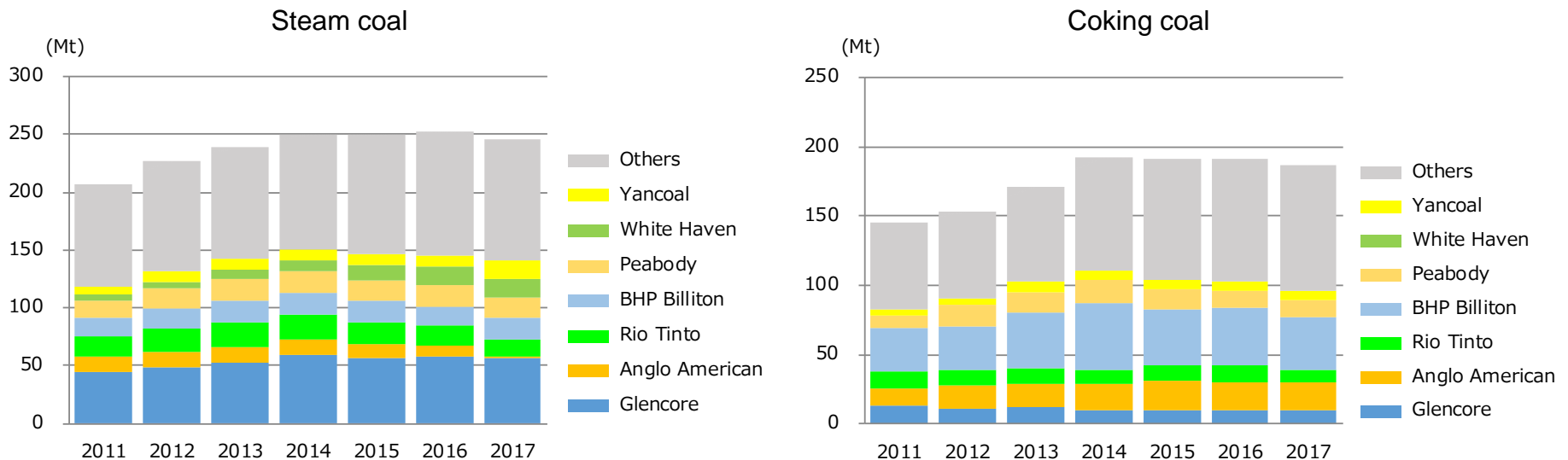


Source: TEX Report (based on the United States' customs statistics)

Activities of Coal Majors

- Rio Tinto: exited coal business and sold assets in the United States, Mozambique and Australia
- Glencore: expanding its steam coal operations mainly in New South Wales
- BHP Billiton: coking coal operations mainly in Queensland, working to expand it
- Anglo American: plans to exit coal business; however, has frozen sales of certain coking coal assets given recovering market conditions
- Peabody: rehabilitated after filing for bankruptcy; disposed of assets in the United States and Australia
- Vale: plans to exit Australia and focus on Mozambique
- Yancoal and Whitehaven: expanding steam coal and PCI coal operations

Production of each company in Australia



Source: annual report of each company; Australia production from Federal Government statistics.

Summary (International Coal Market in 2018-2019)

- Steam coal demand will expand in emerging countries mainly in Asia. In particular, demand will grow in India and ASEAN, while China is forecast to see an increase in demand at least in 2018. Meanwhile, demand will continue falling in Europe and North America.
 - ➡ As a result, global steam coal demand will increase slightly.
- As for the supply side, coal industry reorganization mainly involving coal majors (coal asset disposals and deals) will make progress, but supply capacity will be maintained and we see supply capacity increasing due to the restart of operations at idled coal mines and expansion of operating coal mines. In addition, Colombia and Russia, which boosted exports in 2017, plan to continue increasing supply capacity.
 - ➡ Due to these factors, supply is expected to exceed demand.
- Coking coal demand will increase in India along with imports. In China, coking coal demand and imports both rose in 2016 and 2017, but appear to have leveled off in 2018. In other regions coking coal demand has remained largely unchanged.
 - ➡ As a result, global coking coal demand will increase.
- On the supply side, similar to steam coal, coal industry reorganization (coal asset disposals and deals) will make progress, but supply capacity will be maintained. We see the possibility of an increase in supply capacity owing to restart of operations at idled coal mines and expansion of operating coal mines.
 - ➡ As a result, supply increases are expected to outpace demand.
- Based on the above, the international coal market in 2018 and 2019 does not foretell tight supply conditions that will support current elevated prices for both steam coal and coking coal.

Summary (Coal Prices in 2018-2019)

- We see coal prices falling up to 2019 for both steam coal and coking coal, because current prices remain elevated above the supply-demand situation.
 - The spot price of steam coal (as FOB price at Newcastle Port in Australia) will fluctuate with seasonal factors, but prices will fall back to the lower \$70/ton range during the non-peak season.
 - The spot price of coking coal (Australian premium hard coking coal FOB price) will retreat back to the \$150/ton range.

Annual average spot price of steam coal and coking coal

(\$/ton)

	2017 average	2018 average	2019 average
Spot price of steam coal	89.03	101	80
Spot price of coking coal	188.36	192	160