



Japanese Thermal Coal Consumption Approaching Long Term Decline

Australia's Biggest Export Destination to Transition Away from Coal

Executive Summary

Japan is by far the largest thermal coal export destination for the state of New South Wales (NSW) in Australia, representing 45% of all NSW exports in 2018. As a result, any moves by Japan away from thermal coal have great significance for the NSW thermal coal industry.

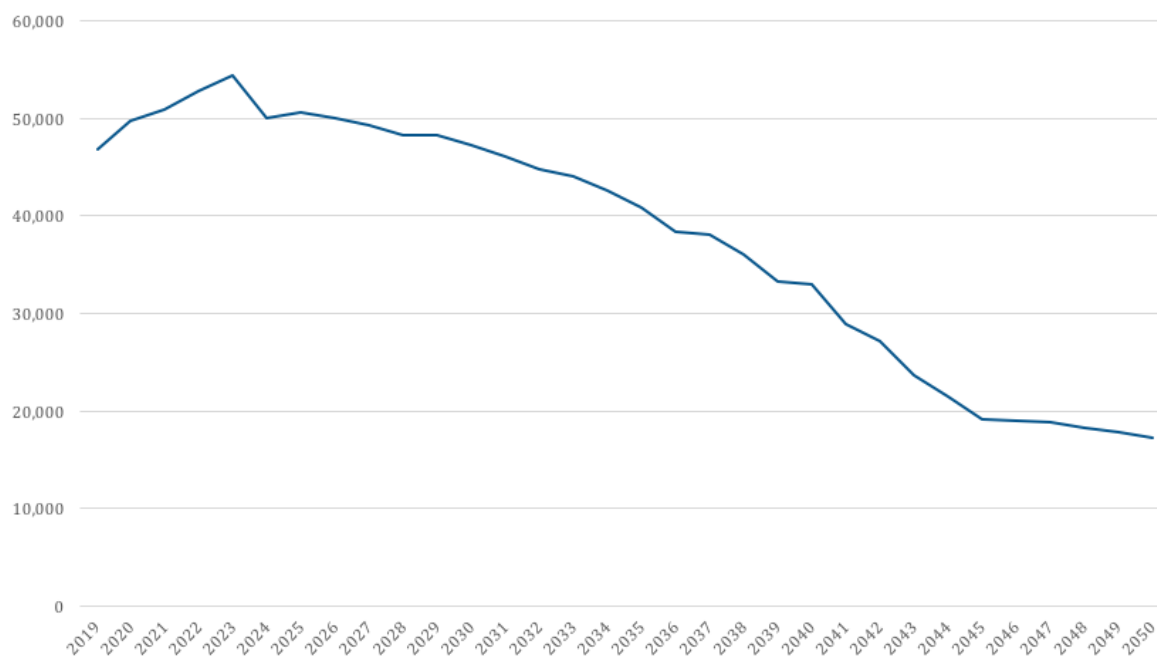
In the run up to Japan chairing the G20 meeting in Osaka from 28-29 June 2019, the Japanese cabinet approved a long-term emissions reduction strategy which included a goal for Japan to be carbon neutral soon after 2050.

Even prior to this announcement, Japan was already on course to significantly reduce long-term thermal coal consumption on a business-as-usual basis:

**Even under a business-as-usual
scenario, Japan's coal-fired
power capacity will go into
decline from 2023**

- Japan's pipeline of new coal-fired power plants has collapsed 64% in the last four years. From almost 12.7 gigawatts (GW) of projects in the pipeline at January 2015, the latest figures put the pipeline at under 4.6GW with more cancellations likely. Of the remaining capacity, 2.5GW is now in doubt.
- Thermal coal exports from NSW to Japan peaked in 2015 whilst NSW total thermal coal exports peaked in 2014.
- Even under a business-as-usual scenario, Japan's coal-fired power capacity will go into decline from 2023, with plant closures accelerating in the 2030s and early 2040s (Figure i).
- Japan has 8.7GW of new coal plants currently under construction, but these will largely replace older units due for retirement - a situation often glossed-over by the Australian coal industry. In total, 8.2GW of old, subcritical coal plants are due for retirement in Japan over the next five years according to Global Energy Monitor data, based on an expected 40-year plant life. The new plants' much-vaunted "efficiency" means they use less coal than old plants, so replacing old coal plants with new will contribute to reduced thermal coal demand.

Figure i: Japan's Business-As-Usual Coal-Fired Power Capacity (MW)



Source: Global Energy Monitor, IEEFA calculations

- Japan's environment ministry announced in March 2019 that it would not sanction any more coal-fired power plants or upgrades to existing ones.
- Japan's major power utilities are now prioritising renewable energy (solar, offshore wind) over coal-fired power. Coal may also face increased competition from Liquefied Natural Gas (LNG) in the longer term.
- The utilisation of Japan's coal plants is set to decline significantly according to global credit rating agency Moody's. Moody's sees the utilisation of Japanese plants fall from a decade high of over 80% in 2017 to just over 60% by 2030 under the International Energy Agency's (IEA) New Policies Scenario (NPS). Under the IEA's Sustainable Development Scenario (SDS) the fall in plant utilisation is even greater, collapsing to an uneconomic 32% by 2030. Significantly, Moody's states: "We see signs that the SDS is becoming increasingly likely."
- Japan's influential trading houses have recently made moves away from thermal coal, announcing an end to coal-fired power development and divesting from thermal coal mine investments, including in Australia. Major Japanese financial institutions are amongst the 114 global financial institutions to-date that have ceased lending to, or investing in, thermal coal and coal-fired power plants.
- Japan is not the only major market for Australian thermal coal that will go into long-term decline. NSW other major destinations (China, South Korea, Taiwan) are also set for a significant long-term decline in imports. Any increase in

exports to smaller, Southeast/South Asian markets will not be enough to make up for these declines. Japan, China, South Korea and Taiwan together imported 90% of all 2018 NSW thermal coal exports.

- The idea that Asian coal-plant operators will switch to more expensive, higher energy Australian coal to reduce carbon emissions into the future is a myth. With renewable energy increasingly cheaper than coal-fired power, nations seeking to reduce carbon emissions will simply switch to renewables in the long term. In the shorter term, cost will be the key factor driving decisions over the energy content of coal to be imported which will favour cheaper, lower energy coal from Indonesia.

With demand for imported thermal coal in NSW's big four export destinations to continue to decline, the market is set for long-term oversupply, lower prices and lower royalties.

Continuing to approve new thermal coal mines in Australia will add more production into an oversupplied market. A cessation of new thermal coal mine approvals represents a rational economic step in the face of a declining market.

Japan, Carbon Emissions and the G20

In June 2019, Japan chaired the G20 summit in Osaka. In the run up, the Japanese government had placed climate considerations as a top priority for the summit and Prime Minister Shinzo Abe had even penned an op-ed in the Financial Times which called for nations to “reduce the use of fossil fuels”.¹

However, despite this earlier enthusiasm, Japan watered down climate commitments in the draft G20 communiqué under geopolitical pressure from the U.S.² Despite this, Japan's cabinet did adopt a long-term emissions reduction strategy which included a goal for Japan to be carbon neutral soon after 2050.³

Light on detail, the strategy represents a small step forward but is unlikely to convince major investors that Japan is *not* still lagging when it comes to climate change action. Leading U.K. investor Legal & General Investment Management (LGIM), which has around one trillion pounds under management, recently assessed 82 large companies around the globe on how they address climate change – the worst performers were from Japan and South Korea.⁴

Growing Momentum Away from Coal in Japan

Although Japan has recently failed to show climate leadership at the geopolitical level, domestically the last 18 months has seen significant Japanese momentum away from coal. This has been characterised by the decision-making of Japanese banks, insurers, trading houses, and power utilities, as well as politicians to some extent.

Coal-Fired Power Projects Cancelled

The year 2018 saw an accelerated cancellation rate of proposed new Japanese coal-fired power plants following the decision in 2017 by utility Kansai Electric Power to scrap plans to convert its 1,200 megawatt (MW) Ako power station from oil to coal.⁵

In April 2018, Japanese electric utility J-Power scrapped a plan to replace ageing power plants with 1,200MW of new coal-fired power generation.⁶

In December 2018 it was announced that JFE Steel and Chugoku Electric Power's 1 gigawatt (GW) coal-fired power project near Tokyo had been cancelled.⁷

¹ Financial Times, [Join Japan and act now to save our planet](#), 23 September 2018.

² Financial Times, [G20 plays down commitment to climate change action](#), 25 June 2019.

³ Reuters, [Japan adopts long-term emissions strategy under Paris Agreement](#), 11 June 2019.

⁴ Nikkei Asian Review, [Japan and South Korea lag on climate action: UK asset manager](#), 23 June 2019.

⁵ Reuters, [Japan's Kansai Electric cancels plans to switch oil-fired power station to coal](#), 1 February 2017.

⁶ Reuters, [Japan's J-Power scraps plan to replace two coal-fired power plants](#), 27 April 2018.

⁷ Bloomberg, [JFE Steel, Chugoku Electric Scrap Coal-Fired Power Plant Plans](#), 27 December 2018.

IN JANUARY 2019, THE LARGEST REMAINING COAL PLANT IN JAPAN'S PROJECT PIPELINE WAS CANCELLED – the 2GW Chiba project.⁸ Proponent Kyushu Electric Power Corp. noted the plant would be unable to yield the required investment returns.

This is unsurprising given Japan's electricity demand has dropped 12% over the last decade and will at best plateau going forward as Japan faces a continued declining population trend.

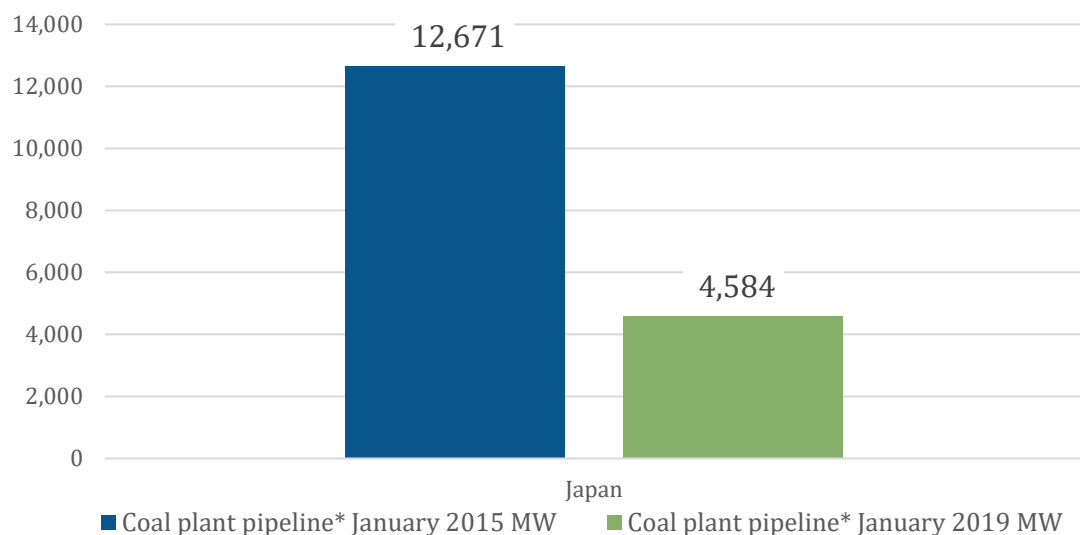
Bloomberg New Energy Finance forecasts that Japanese electricity demand will decline another 10% by 2050.⁹

New coal-fired plants make increasingly less sense given this demand stagnation, the government's determination to bring nuclear power units back online, and the prospect of more renewable energy, with offshore wind poised to breakout in Japan as it is around Asia.¹⁰

Japan's pipeline of new coal-fired power plants has collapsed 64% in four years.

From almost 12.7GW of projects in Japan's pipeline at January 2015, the latest figures put the pipeline at under 4.6GW (Figure 1). Furthermore, more than half of the remaining project pipeline capacity now appears to be in doubt.

Figure 1: Japan's Coal-Fired Power Pipeline 2015-2019 (MW)



Source: Global Energy Monitor

*Projects announced, permitted or in pre-permit development

⁸ Kyushu Electric Power Co., [Changes in the Thermal Power Plant Project in Sodegaura City, Chiba Prefecture](#), 31 January 2019.

⁹ Bloomberg New Energy Finance, [New Energy Outlook 2019](#).

¹⁰ IEEFA, [Offshore wind power, the unexplored opportunity that could replace coal in Asia](#), 30 August 2018.

In February 2019, it was reported in Japan's Nikkei that Marubeni and Kansai Electric Power's 1.3GW Akita coal-fired power project, due to come on line in 2024, was now under review with alternatives to coal being considered.¹¹

Then, in April 2019, Osaka Gas announced that it had pulled out of the 1.2GW Ube coal-fired power project which has two units scheduled to come on line in 2023 and 2025. Osaka Gas stated that the potential for stricter rules on coal-fired power after 2030 was amongst the reasons for its withdrawal from the project.

The two other Ube project proponents, J-Power and Ube Industries have said they will continue the project.¹² However, they have halted an environmental assessment process pending a project review which may involve scaling down the project or switching to an integrated gasification combined cycle (IGCC) project. With the plan set to be revised within two years, during which the cost of renewable energy will continue to decline rapidly, IEEFA believes there is a high chance that this project will simply be cancelled.

In addition, although approval for new coal plants comes from the Ministry of Economy, Trade and Industry, Japan's Environment Ministry announced in March 2019 that it would not sanction any more coal-fired power plants or upgrades to existing ones.¹³

Japan does have 8.7GW of coal plants currently under construction but these will replace older units due for retirement, a situation often glossed-over by the Australian coal industry. There are 8.2GW of old, subcritical coal plants due for retirement in Japan over the next five years according to Global Energy Monitor (GEM) data, based on an expected 40-year operating life. Furthermore, the new plants' much-vaunted "efficiency" means they use less coal than old plants, so replacing old with new will contribute to reduced thermal coal demand.

Power Companies Shift Away from Coal, Towards Renewables

JERA, Japan's biggest thermal power generator (both coal- and Liquefied Natural Gas (LNG)-fired), and the world's largest LNG buyer, announced in April 2019 that it will focus on LNG-fired power and renewables going forward, stating that it wants to "become the global leader in LNG and renewable energy to enhance the transition to a clean energy economy."¹⁴

The company, a joint venture between Tokyo Electric Power Co (TEPCO) and Chubu Electric Power Co, owns about half of all of Japan's thermal power capacity but now

¹¹ Nikkei, 関電・丸紅、秋田石炭火力見直し バイオマス転換も, 21 February 2019.

¹² Reuters, [Osaka Gas to withdraw from coal-fired power station project](#), 24 April 2019.

¹³ Asahi Shimbun, [Japan to rule out coal-fired plants as international criticism rises](#), 28 March 2019.

¹⁴ Reuters, [INTERVIEW-JERA aims to double profit by FY25/26 with focus on LNG, renewable energy](#), 23 April 2019.

wants to increase renewable energy capacity to 5GW within seven years, up from 650MW currently.

Having shifted its thermal power assets into its JERA joint venture, TEPCO is now focusing on an initial target of adding 6-7GW of renewable energy in Japan and overseas, with a particular emphasis on offshore wind.

TEPCO's President has stated, "We must gain competitive advantage in renewable energy."¹⁵ In January 2019, TEPCO signed a Memorandum of Understanding with global offshore wind leader Ørsted to jointly develop such wind projects. Ørsted believes 7-8GW of offshore wind can be built in Japan by 2030 without the need for floating turbine technology.¹⁶

Kansai Electric Power - another leading Japanese power utility - announced in March 2019 a renewable portfolio target of 6GW by 2030, up from a token 11MW currently.¹⁷

In its 2019 New Energy Outlook report, Bloomberg New Energy Finance forecasts that more than three-quarters of Japanese electricity generation will be from renewable energy sources by 2050, with wind and solar PV contributing around 32% each.¹⁸

Trading Houses Abandoning Thermal Coal

Japan's large and influential trading houses (the *sōgō shōsha*) have recently announced policies that turn them away from thermal coal, including the sale of investments in Australian thermal coal mines.

Marubeni announced a change in policy on coal-fired power in September 2018.¹⁹ The company stated that it will cut its coal-fired power capacity of around 3GW by half by 2030. Marubeni also said that it will not enter into any new coal-fired business "as a general principle". Finally, Marubeni committed to increase the ratio of generation from renewables in its power portfolio from 10% to 20% by 2023.

In December 2018, both Mitsui & Co. and Mitsubishi Corp. released significant statements. Mitsubishi announced the sale of its two Australian thermal coal investments in the Clermont and Ulan mines.²⁰

¹⁵ Nikkei Asian Review, [Tepco seeks overseas partners in renewable energy pivot](#), 24 July 2018.

¹⁶ Asian Power, [7-8GW of bottom-fixed offshore wind can be built in Japan by 2030: Ørsted](#), 23 January 2019.

¹⁷ The Guardian, [Japan to oppose new or expanded coal-fired power plants in blow to Australian exports](#), 31 March 2019.

¹⁸ Bloomberg New Energy Finance, [New Energy Outlook 2019](#).

¹⁹ Marubeni, [Notification Regarding Business Policies Pertaining to Sustainability](#), 18 September 2018.

²⁰ Mitsubishi Corp, [Mitsubishi Corporation has Reached Agreement to Sell its Interests in the Clermont and Ulan Coal Mines in Australia](#), 18 December 2018.

Mitsui announced the sale of its investment in the Bengalla thermal coal mine in NSW to New Hope Corporation.²¹ Mitsui also stated, "For thermal coal, Mitsui has the corporate strategy to refrain from accumulating new assets while existing assets are under thorough review for divestiture possibilities."

Then in February 2019, Itochu Corp. announced it will no longer develop any new coal-fired power plants or thermal coal mines.²²

Following this, in March 2019 Sojitz Corp. announced the divestment of its Indonesian coal mine investment as part of its own shift away from thermal coal.²³ Sojitz stated that: "This strategic share sale furthers Sojitz's shift away from thermal coal investments as the company continues to rebalance its coal assets in light of rising global concern for the environment and long-term business sustainability."

Japanese Financial Institutions Make Their Move

A significant number of global financial institutions have begun to pivot away from fossil fuels with coal facing the greatest impact so far. Today, 114 globally significant financial institutions have divested from thermal coal, including 45% of the top 40 global banks and 23 globally significant insurers.²⁴

A growing number of major Japanese financial institutions have made their own move away from coal:

- In May 2018 Dai-ichi Life became the first Japanese insurer to restrict coal finance.²⁵
- In July 2018 Nippon Life Insurance, Japan's largest insurer, announced that it will cease financing all coal-fired power stations in Japan and overseas.²⁶
- Also in July 2018, Sumitomo Mitsui Trust Bank (assets of US\$483bn) become Japan's first bank to put in place a policy precluding project finance for new coal-fired power, stating that it would not provide such funding "as a basic rule".²⁷
- In May 2019, Mitsubishi UFJ, the largest bank outside of China, stated that it will cease financing new coal-fired power plants.²⁸ Mitsubishi UFJ has been Japan's biggest lender to coal-fired power in recent years.

²¹ Mitsui & Co, [Mitsui to Sell Its Interest in Bengalla Joint Venture](#), 3 December 2018.

²² Itochu Corp, [Coal-related business policy](#), 14 February 2019.

²³ Sojitz Corp, [Sojitz Divests Interest in Thermal Coal Assets, BAU Coal Mine, in Indonesia](#), 11 March 2019.

²⁴ IEEFA, [Over 100 Global Financial Institutions Are Existing Coal, With More to Come](#), 26 February 2019.

²⁵ Bloomberg, [Cracks Emerge in Coal Haven as Insurers Mull Funding Curbs](#), 11 May 2018.

²⁶ Reuters, [Japan's Nippon Life to stop financing coal-fired power](#), 23 July 2018.

²⁷ Reuters, [Japan's Nippon Life to stop financing coal-fired power](#), 23 July 2018.

²⁸ Mitsubishi UFJ, [MUFG Sets Sustainable Finance Goals and Revises Environmental and Social Policy Framework](#), 15 May 2019.

Business-As-Usual: Japan's Thermal Coal Capacity Rapidly Declines from 2023

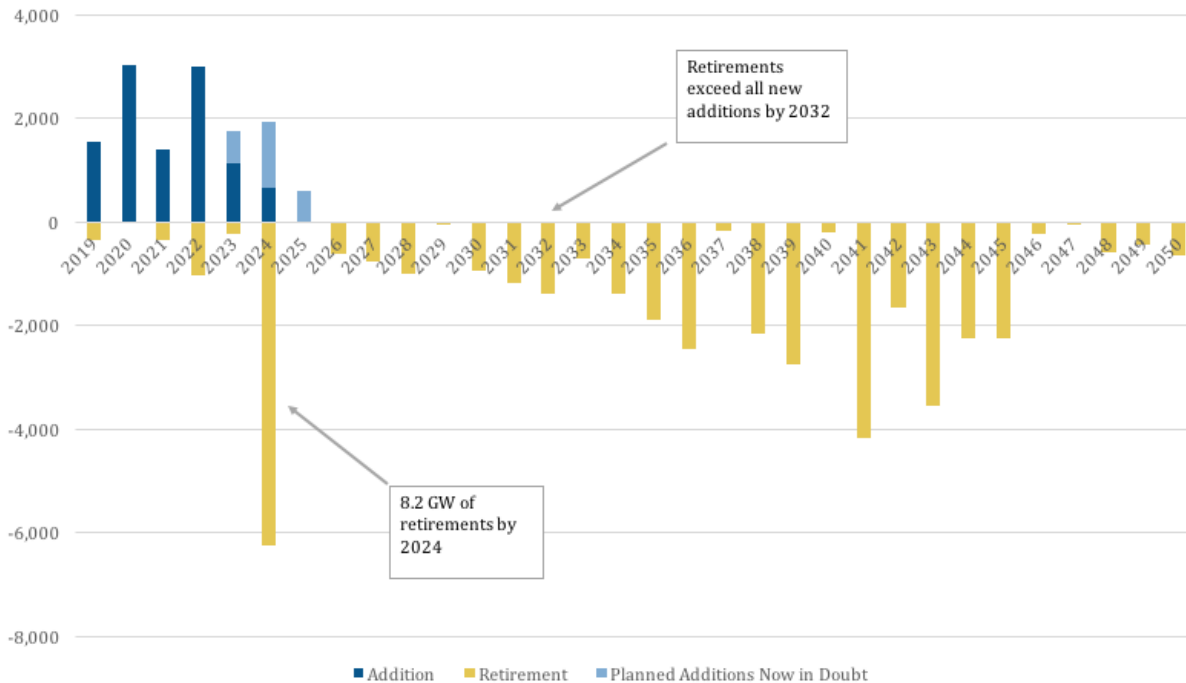
Despite Japan's failure to show global climate leadership as chair of the G20, the nation remains on track for a significant reduction in coal-fired power capacity in the long term.

The pipeline of coal-fired power plants under development is shrinking precipitously as projects get cancelled. It now seems clear that no new coal plant proposals will be made in Japan.

The 8.7GW of plants under construction will quickly be offset by closures of existing plants as they reach the end of their operating life, assuming they do not have their operating lives extended.

It now seems clear that no new coal plant proposals will be made in Japan.

Figure 2: Planned Coal Capacity Additions and Future Retirements (MW)



Source: Global Energy Monitor, IEEFA calculations

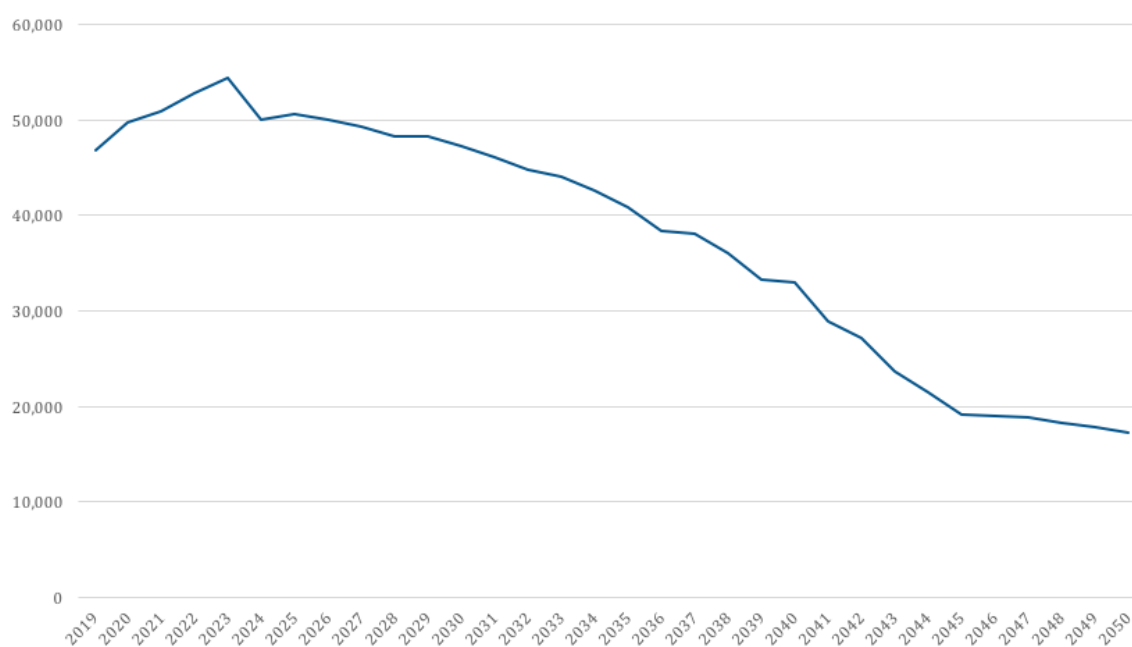
By 2024, 8.2GW of coal-fired power capacity is due for retirement according to GEM data, based on an expected 40-year operating life. Furthermore, total planned additions to the fleet, which includes the 8.7GW under construction and 4.6GW of

projects in the development pipeline, will be exceeded by retirements by 2032 (Figure 2).

In addition, the 4.6GW of projects under development includes 2.5GW of projects which are in doubt (the 1.3GW Akita project and the 1.2GW Ube project – refer page 6).

With no new coal plants scheduled to come on line after 2025, coal-fired power capacity will peak in 2023 and progressively declines out to 2050 as existing plants reach the end of their operating life (Figure 3).

Figure 3: Japan's Business-As-Usual Coal-Fire Power Capacity (MW)



Source: Global Energy Monitor, IEEFA calculations

Declining Coal Plant Utilisation

In addition to declining capacity, Japan's thermal coal consumption will be further reduced by decreasing utilisation of its coal-fired power plants.

The utilisation of Japan's coal plants will decline significantly according to global credit rating agency Moody's, even under the International Energy Agency's (IEA) New Policies Scenario (NPS). According to its calculations using IEA data, Moody's sees the utilisation of Japanese plants fall from over 80% in 2017 to just over 60% by 2030 (Figure 4).²⁹

²⁹ Moody's, [Climate Goals, declining costs of renewables signal decreasing reliance on coal power](#), 8 May 2019

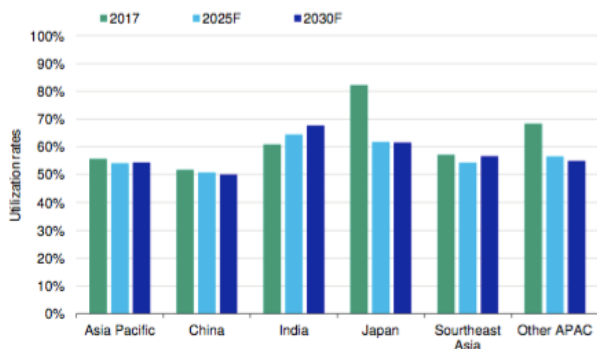
The IEA's NPS is one in which the world fails to limit global warming to 2°C or less and instead heads for levels of climate change of 3°C or more.

The collapse in coal-fired power plant utilisation is much greater under the IEA's Sustainable Development Scenario (SDS), in which the world has a good chance of limiting warming to 2°C or less, according to Moody's. Across Asia-Pacific, average utilisation drops from around 55% to around 37% by 2030. In Japan, utilisation drops from over 80% to an uneconomic 32% by 2030 under this scenario (Figure 4).

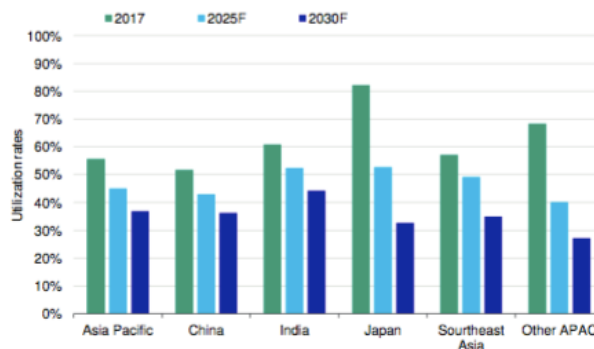
“We see signs that the SDS [IEA's Sustainable Development Scenario] is becoming increasingly likely.”

Significantly, Moody's states that, “We see signs that the SDS is becoming increasingly likely”.³⁰

Figure 4: Asian Coal Plant Utilisation Rates Under IEA's New Policies Scenario (NPS) (Left Chart) and Sustainable Development Scenario (SDS) (Right Chart)



Sources: IEA, Moody's Investors Service



Sources: IEA, Moody's Investors Service

NSW Thermal Coal Exports to Japan are Declining

A decline in coal-fired power capacity has significant implications for the NSW thermal coal industry.

Japan was the destination for 45% of NSW thermal coal exports in 2018, making it by far the largest thermal coal export destination for NSW which is Australia's primary thermal coal export state (Figure 5). Exports from NSW to Japan peaked in 2015.

In 2018, NSW exports to Japan were 64.5Mt, down 0.4% on the prior year and down 1.5% from the 2015 peak. The Australian Government's Office of the Chief

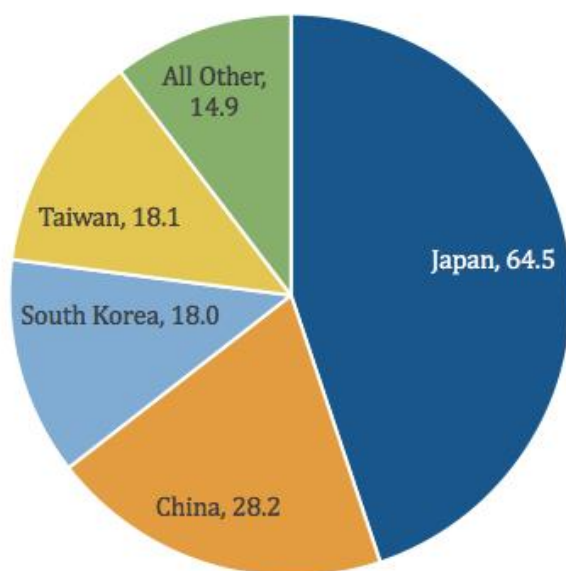
³⁰ Moody's, [Climate Goals, declining costs of renewables signal decreasing reliance on coal power](#), 8 May 2019

Economist forecasts that Japan's thermal coal imports will decline at an average annual rate of 1.1% per year out to 2024.³¹

Beyond this, Japan's coal consumption looks set to decline further as significant capacity reaches retirement age in the 2030s and early 2040s under a business-as-usual scenario (Figure 3).

Japan is the largest of NSW four main thermal coal export markets along with China, South Korea and Taiwan (Figure 5). All other export destinations are far behind the big four in terms of significance to the industry—the sum of all other export destinations is smaller than any of the big four.

Figure 5: Countries receiving NSW Thermal Coal Exports 2018 (million tonnes)



Source: DFAT STARS Database, based on ABS Cat No 5368.0, December 2018 data.

NSW Thermal Coal Exports Already in Decline

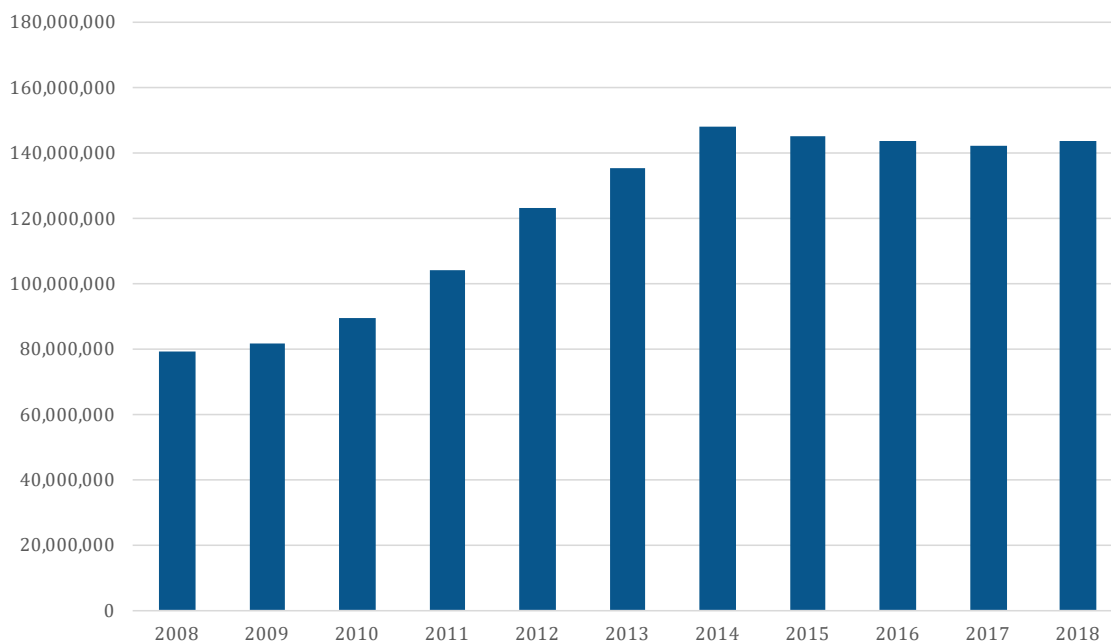
The decline in exports to NSW biggest export destination will be compounded by declines in NSW other three major export destinations.

This impact is already being felt - thermal coal exports from NSW peaked in 2014 (Figure 6).

With the outlook for exports to all the big four destinations now looking grim for the Australian thermal coal sector, this trend is set to accelerate in the long term.

³¹ Office of the Chief Economist, [Resources and Energy Quarterly](#), March 2019..

Figure 6: NSW Thermal Coal Exports Peaked in 2014 (tonnes)



Source: DFAT STARS Database, based on ABS Cat No 5368.0, December 2018 data.

Pipelines of coal-fired power station developments across Asia are shrinking and a recent medium-term projection from the Australian Government forecasts that NSW major coal export destinations will be importing less thermal coal going forward:

- China was NSW second largest thermal coal export destination in 2018 following a recovery in exports to that nation – 2018 exports were almost 20% higher than in 2017. However, this recovery is likely to be short-lived. Australia's Office of the Chief Economist forecasts that China's thermal coal imports will decline at an average annual rate of 5.2% per year out to 2024.³² The peak of NSW thermal coal exports to China was in 2014.
- China added 194Mt of new domestic coal mining capacity in 2018³³, not far off the total thermal coal imported into China in 2018 (216Mt). In addition, China is prioritising renewable energy and coal to gas switching as it grapples with its air pollution crisis. China recently increased its renewable energy consumption targets from 20% to 35% by 2030.³⁴ The emphasis on alternatives to coal and the continuing addition of new domestic mining capacity will see coal imports increasingly squeezed out going forward.
- After two years of strong electricity demand growth across China, in this year to May 2019 China's thermal power demand is flat (+0.2% year-on-year), as

³² Office of the Chief Economist, [Resources and Energy Quarterly](#), March 2019.

³³ Reuters, [China boosts coal mining capacity despite climate pledges](#), 26 March 2019.

³⁴ Bloomberg, [China Steps Up Its Push Into Clean Energy](#), 26 September 2018.

electricity demand growth in China has slowed to +3.3% year-to-date year-on-year.³⁵ China's coal production and consumption peaked back in 2014.

- In April 2019, the South Korean Ministry of Trade, Industry and Energy proposed to increase the country's renewable energy ambition. The country is likely to now target 30-35% renewable energy by 2040, up from 8% currently. The Ministry also stated it will "drastically" reduce coal-fired power generation by banning new coal plants and retiring old ones.³⁶ South Korea looks set to close 20 ageing coal plants and cap output at others.³⁷ NSW 2018 thermal coal exports to South Korea were 35% below their 2015 peak.
- Also in April 2019, South Korea raised the coal import tax a further 28% to US\$40/t and cut the LNG import tax 75%, a clear indication that the government wants to promote a switch from coal to LNG-fired power. Bloomberg New Energy Finance sees the South Korean electricity generation mix moving from 64% coal and nuclear in 2018 to 71% gas and renewables by 2050.³⁸
- NSW thermal coal exports to Taiwan in 2018 were 3.7% down on the prior year total and almost 14% down on the peak of exports to Taiwan in 2016. After project cancellations, Taiwan no longer has any new coal-fired power plants in development.

Although there will be some growth in thermal coal demand from some smaller Asian economies such as Vietnam and the Philippines, this will not be enough to make up for the decline in demand from the big four export destinations.

The fifth biggest export destination for NSW thermal coal in 2018 was Malaysia with 3.6% of NSW total exports. Malaysia does not have any new coal-fired power plants under development.

Vietnam is a major growth market for thermal coal exporters, but this is starting from a very low base for NSW. The share of NSW thermal coal exports that went to Vietnam was only 0.3% in 2018. In addition, renewable energy in Vietnam now has increasing momentum. Southeast Asia's largest solar power plant was completed in Vietnam in April 2019,³⁹ while onshore⁴⁰ and offshore wind⁴¹ plans are building.

Vietnam is also likely to be a priority market targeted by Indonesian coal exporters as Indonesia's biggest export market (China) goes into decline.

Similarly, the Philippines represented just 0.8% of NSW exports and India only 1.2% in 2018.

³⁵ National Bureau of Statistics, China, [May 2019 Data](#), 6 June 2019.

³⁶ IEEFA, [South Korea Shifting Further Away from Coal](#), 23 April 2019.

³⁷ Reuters, [South Korea fires up on renewables, to close more coal plants](#), 18 June 2019.

³⁸ Bloomberg New Energy Finance, [New Energy Outlook 2019](#).

³⁹ PV-Tech, [BIM and Ayala complete Southeast Asia's largest solar project](#), 29 April 2019.

⁴⁰ CleanTechnica, [Vietnam To See 1 Gigawatt Of Onshore Wind Installed By 2021](#), 12 June 2019.

⁴¹ IEEFA, [Vietnam looks to tap huge offshore wind potential](#), 16 April 2019.

Exports to Thailand represented 2.1% of total 2018 thermal coal exports out of NSW. In April 2019, Thailand's cabinet approved a new long-term energy plan which reduced coal-fired power's targeted contribution to overall electricity generation down to 12% by 2037. The previous target had been up to 25% by 2036.⁴²

Coal-fired power plants in Asia are largely financed through public finance institutions from China, Japan and South Korea, including the Japan Bank for International Cooperation (JBIC), Export-Import Bank of China, China Development Bank, and the Export-Import Bank of Korea (KEXIM).

With growing concern about carbon emissions and air pollution, these institutions and the governments that control them are coming under increasing pressure to cease coal financing activities.

The growing likelihood that these financial institutions could curtail coal-lending activities sooner rather than later would significantly limit the availability of funding for coal plants and lead to a major, further contraction of the Asian coal-fired power project pipeline.

Thermal Coal Experiencing Increasing Competition from LNG

In addition to increasing competition from ever-cheaper and more efficient renewable energy technology, thermal coal may see LNG eat into its market in the long term.

This has already been happening in the shorter term. Despite lower recent thermal coal prices due to market over-supply, LNG prices have also dipped enough to fall below thermal coal on an energy equivalent basis. This has convinced some Japanese utilities to consider some coal-to-LNG switching in the shorter term which could see LNG-fired plant utilisation increase and coal-fired power utilisation decline.⁴³

How relative thermal coal and LNG prices stack up in the long term is hard to predict. However, with new thermal coal mines increasingly difficult to finance as global lenders progressively withdraw from the sector⁴⁴, it is possible that LNG pricing could be highly competitive with thermal coal in the long run as LNG supply continues to expand.⁴⁵

⁴² Reuters, [Thailand approves power plan, expects capacity to reach 77GW by 2037](#), 30 April 2019.

⁴³ Bloomberg, [Diving Gas Costs Spark Potential Rare Switch Away From Coal in Japan](#), 5 June 2019.

⁴⁴ Reuters, [Asia's coal developers feeling left out by cold shoulder from banks](#), 25 June 2019.

⁴⁵ Reuters, [Asia's thermal coal trade faces threats, with LNG the silent assassin: Russell](#), 26 June 2019.

In April 2019, Tokyo Gas signed a long-term LNG supply deal with Royal Dutch Shell which partly uses a coal-linked pricing formula – believed to be the first time this has been done by a Japanese LNG buyer.

With LNG supply on the rise, more moves away from oil-linked pricing of LNG could help it increase competition with thermal coal.

Myth-busting: Countries Are NOT Likely to Turn to Australia's Higher-Energy Coal to Reduce Emissions

NSW thermal coal exports are assessed against two benchmarks:

- the higher energy Newcastle 6,000 kilocalories per kilogram (kcal/kg) net as received (NAR), 11-14% ash benchmark; and
- the lower energy Newcastle 5,500 kcal/kg NAR, 20% ash benchmark.

Exports to Japan are dominated by the 6,000 kcal/kg NAR benchmark. As such, as Japan's imports decline, Australian producers will need to find new markets for the higher energy, higher priced product.

The Australian coal industry has often suggested that nations around Asia will switch from lower energy Indonesian coal to higher energy Australian coal to address carbon emissions concerns (emissions from higher energy coal are marginally lower than those from lower energy coal). The theory suggests finding new markets for Newcastle 6,000 kcal/kg coal will be straightforward.

There is little evidence that nations will favour higher energy Australian coal in the long term

However, IEEFA considers this switch to higher energy theory to be a myth. There is little evidence that nations will favour higher energy Australian coal in the long term unless the energy-adjusted price is favourable.

Now that renewable energy is increasingly cheaper than new coal-fired power plants across an increasing share of the Asian market (China is set to reach grid parity for both solar and wind by 2020 with zero subsidy support⁴⁶, while Indian renewables are well below grid parity, which was reached back in 2017), any nation concerned with lowering carbon emissions and stranded asset risk will simply turn away from new coal plants altogether and use cheaper, zero-emission technology.

Furthermore, any nation that is less concerned about lowering emissions will likely stick with cheaper, lower energy coal.

⁴⁶ Bloomberg, [China Unveils First Batch of Solar, Wind Farms That Won't Be Supported by Subsidies](#), 22 May 2019.

Even Japan, which has historically favoured high-energy thermal coal, is now beginning to turn more towards the cheaper, lower energy 5,500 NAR benchmark. A number of Japanese power utilities have reportedly been experimenting with a blend of higher and lower grade coals in order to benefit from the lower price of the 5,500 product,⁴⁷ which could also reduce Japan's dependency on Australia as a coal supplier.

Meanwhile, new entrants to imported coal-fired power are unlikely to turn to Australian coal.

Pakistan's nascent coal power fleet is funded by government capital subsidies from China and fuelled by South African and Indonesian coal. And Bangladesh signed an agreement in June 2019 for the supply of Indonesian coal for its nearly complete, Chinese-funded Payra coal power plant.⁴⁸

Coal price appears to be the primary concern for Asian coal power plant operators, and this does not favour Australian coal. With ever-cheaper renewable energy on the rise around Asia and effectively pulling down power purchase agreement (PPA) tariffs, some coal-fired power generators that use imported coal are finding it difficult to operate profitably.

At Mundra in the state of Gujarat, India, almost 10GW of relatively new coal-fired power generation has operated at significant losses over the last decade due to the higher-than-expected cost of imported coal, mostly from Indonesia. These three power stations, owned by Tata Power, Adani Power and Essar Power, are now hoping that a state government bailout will help reduce their losses, while placing additional burden on consumers via an increased tariff. Tata Power Managing Director Praveer Sinha has stated the PPA uplifts would only halve its Mundra plant's losses from the current level of US\$-225m to US\$-240m per year.⁴⁹

Tata Power's loss-making Mundra plant reported that its average coal cost for the 2017-18 fiscal year rose 24% to US\$61.50/t. This increase in fuel cost caused the power plant to make an after-tax loss of US\$-241m, higher than the US\$-119m loss from the prior year.⁵⁰ As a result, Tata Power has increased the consumption of cheaper, lower energy coal in order to address its growing fuel cost. The proportion of lower energy coal blended in at its Mundra plant rose from 20% to 42% in fiscal year 2018-19.⁵¹

It seems unlikely that coal plant operators in Asia can be convinced to switch to higher energy, more expensive Australian coal. This may be especially true if Indonesia needs to find new markets for its lower energy coal as its biggest export destination - China - reduces thermal coal imports.

⁴⁷ Platts, [Japanese thermal coal buyers try out Newcastle HA blend in power plants](#), 27 June 2019.

⁴⁸ Jakarta Post, [Indonesian firm to export coal to Bangladesh](#), 19 June 2019.

⁴⁹ Economic Times, [After tariff relief, our Mundra losses would come down by 50%: Praveer Sinha, Tata Power](#), 6 December 2018.

⁵⁰ Tata Power, [Analyst Presentation Q4 FY18](#), 2 May 2018.

⁵¹ Tata Power, [Analyst Presentation Q4 FY19](#), 2 May 2019.

With the Australian government's Office of the Chief Economist forecasting a 5.2% average annual decline in imports by China and a 1.5% average annual decline in imports by India (Indonesia's second biggest export market) out to 2024, it seems likely there will be plenty of Indonesian coal available to undercut and outcompete Australian coal in the Asian market, despite growing Indonesian domestic coal demand.⁵²

As such, in order to find new markets as Japanese imports decline, the price premium between the higher and lower energy benchmarks of Australian thermal coal may need to decline.

Cheaper 6,000 kcal/kg thermal coal will mean lower royalties income for the NSW state government, lower mining profits and lower corporate tax collected by the federal government.

Continuing to approve new Australian thermal coal mines will add more production into an oversupplied market. A cessation of new thermal coal mine approvals represents a rational economic step in the face of a declining market.

A cessation of new thermal coal mine approvals represents a rational economic step in the face of a declining market.

⁵² Office of the Chief Economist, [Resources and Energy Quarterly](#), March 2019.

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The Institute for Energy Economics and Financial Analysis conducts research and analyses on financial and economic issues related to energy and the environment. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy. <http://ieefa.org>

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