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Australian Thermal Coal Exports Outlook

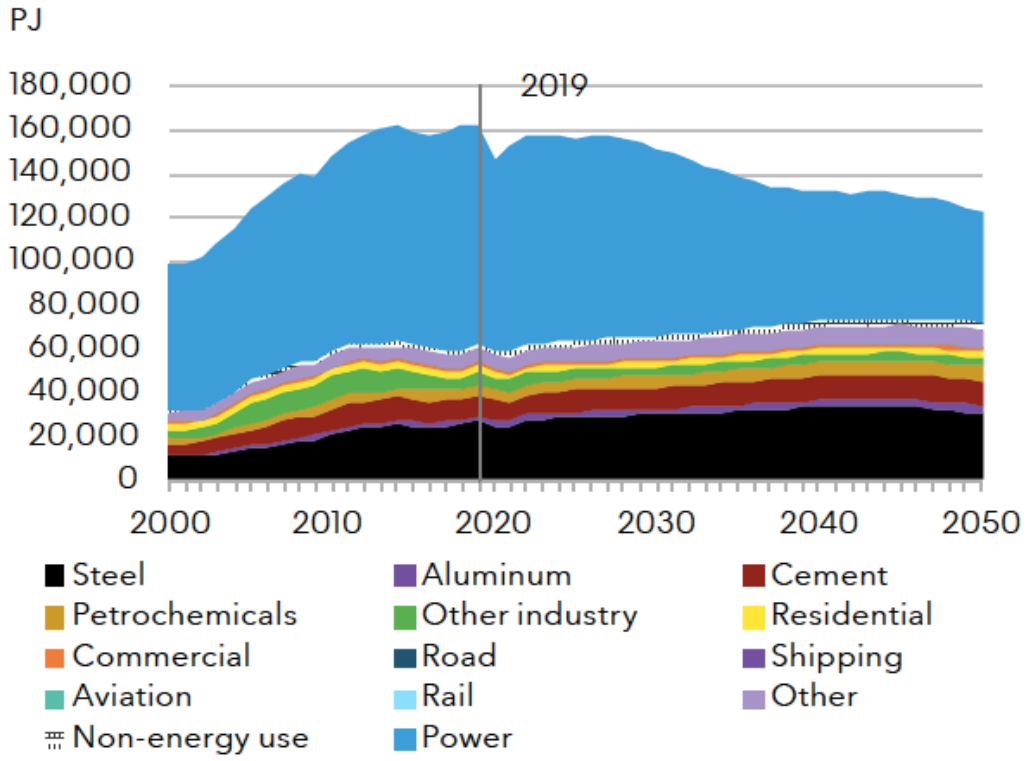
Volumes Set to Fall Amid Accelerating Energy Transition

Executive Summary

Global demand for seaborne thermal coal declined around 8% in 2020 as the world economy slumped during the height of the COVID-19 pandemic. Although a recovery in volumes can be expected in 2021, it seems unlikely that a recovery to pre-COVID levels will be seen. Global coal demand likely peaked in 2018 and will never again reach that level (Figure 1).

Australian thermal coal operations were loss making in 2020 when prices reduced to US$50/t although they have recovered now that prices are above US$80/t. However, higher coal prices are now a double-edged sword for thermal coal miners - from this point of the energy transition onwards, high thermal coal prices will kill long term demand as it makes coal-fired power even more expensive compared to ever-cheaper renewable energy.

Figure 1: Primary Coal Demand by End Use Sector



Source: BloombergNEF New Energy Outlook 2020

The first half of 2020 saw the global coal power fleet shrink for the first time on record as plant retirements outpaced new capacity commissioned. The coal power project pipelines in South and Southeast Asia – supposedly the new demand centres of Australian thermal coal to replace Japan, China and South Korea – are drying up rapidly after an 80% decline since 2015.

Ultimately, demand for Australian thermal coal will be set by the policies and actions of governments and companies in coal-importing Asian nations. The current status and outlook for coal-fired power in these nations has far more impact on the future of Australian thermal coal than the policies and ambitions of the Australian coal industry and state and federal governments.

Thermal Coal Exports Long Term Outlook

Australia's traditional thermal coal export markets are all shifting away from coal-fired power.

Japan: Japan is Australia's largest thermal coal export destination which makes its pledge to achieve net zero carbon emissions by 2050 highly significant. The Japanese government is planning to retire as many as 100 older coal-fired power units by 2030. This plan could see more than half of Japan's current coal power capacity taken offline by that date.

Furthermore, with Japanese power demand expected to fall by 2030-31, coal-fired power in Japan will face increased competition from other sources. Japan is planning a hugely ambitious scale-up of offshore wind, batteries and hydrogen technology to help meet its net zero by 2050 goal.

China: China was Australia's second biggest thermal coal export destination in 2019. This changed significantly in the second half of 2020 when a diplomatic spat led to a ban on coal imports from Australia. However, the bigger risk to Australian thermal coal exporters is not diplomatic tensions but China's clear plan to become self-sufficient for thermal coal in the medium term. China is increasing domestic coal production and rail capacity with the intention of replacing imports.

The Chinese government surprised many in September 2020 when it announced that it was targeting net zero emissions by 2030. Increased emphasis on renewable energy will also squeeze out thermal coal imports. The nation added more than 72GW of wind power in 2020, more than double the previous record. It also added 48GW of solar, the most since 2017.

South Korea: In October 2020, the South Korean government announced its target to reach net zero emissions by 2050, in line with Japan. Under the government's ninth basic electricity plan, coal-fired power generation is expected to decrease 23% by 2030, reducing thermal coal consumption by around 19 million tonnes per annum. A total of 30 coal-fired power plants are expected to be shut down by 2034.

Renewable energy will make up 35% of total capacity by 2030 and 42% by 2034 according to the new plan. Offshore wind will play a major role and South Korea plans to build the world's largest offshore plant (8.2GW) by 2030.

Taiwan: In January 2021, the Taiwanese parliament passed a resolution that will see the 5.5GW Taichung coal power plant decommissioned by 2035 at the latest, and possibly two years earlier. The plant consumed more than 12 million tonnes of thermal coal in 2020.

In addition, over the last five years the pipeline of proposed coal-fired power plants has shrunk from 2.4GW to zero after a series of project cancellations. Most recently, the 1,200MW Shenao power proposal was cancelled in October 2018. This was the last major coal-fired power plant in Taiwan's pipeline.

Other Markets

Other nations have been previously been identified as growth markets for Australian coal exporters. However, with the pace of the energy technology transition accelerating, and finance for coal power increasingly hard to come by, the opportunity for export growth into these markets is rapidly falling away:

India: Like China, thermal coal imports into India make up only a fraction of total consumption with far more thermal coal mined domestically. India has made it clear it intends to become self-reliant for thermal coal as it approaches peak coal consumption amid its rapid renewable energy roll-out.

India is looking to replace 110-120 million tonnes of thermal coal imports with domestic fuel "in the next few years." In March 2021, Coal India announced an investment of US$6.4 billion on further coal mining projects to boost domestic output and replace imports. The 32 projects will have a combined production of almost 200 million tonnes/year. India's coal imports totalled 249 million tonnes in the last fiscal year.

Power Minister R. K. Singh has stated that India will replace retiring coal power capacity with renewable energy and that non-fossil fuel based power generation will make up 60% of total capacity by 2030.

Vietnam: It is expected that the next iteration of Vietnam's power development plan - National Power Development Plan VIII – will significantly reduce further coal power projects with up to 17GW of proposed coal power plants cancelled or postponed until after 2030 (which means they will most likely never be built).

With coal-fired power unable to meet power demand growth expectations in a timely, affordable manner, the new plan will increase focus on quicker-to-build and cheaper renewable energy. Vietnam has already seen a recent boom in renewable energy installations including an astonishing 9GW of rooftop solar added in 2020.

Bangladesh: Prompted by the increasing difficulty in getting finance for coal-fired power as more banks withdraw lending for coal, Bangladesh's power minister revealed in late June 2020 that the government is reassessing its plans for coal-fired power development. In February 2021 it was reported that the government had decided to cancel nine proposed coal-fired power projects.

Pakistan: the Prime Minister of Pakistan announced that Pakistan "will not have any more power based on coal" at the December 2020 Climate Ambition Summit. However, Pakistan had already turned away from coal power fuelled by imported thermal coal in favour of its own domestic coal reserves. Several plants that were intended to have been fuelled by imports have been cancelled. Other coal power proposals have had their plans changed to use domestic rather than imported coal.

Philippines: In October 2020, the Philippines Department of Energy called a moratorium on further coal-fired power development. Following this announcement, the nation's banks have also been distancing themselves from coal. In December 2020, the CEO of Rizal Commercial Banking Corporation stated "No more coal, no more coal. I'll say that slowly - NO MORE COAL".

Increasing Competition in a Declining Market

As demand in the Asian seaborne thermal coal market fades, Australia will not be the only exporter impacted. The other major exporters into the Asian market will also need to seek alternatives as their primary markets decline. The loss of the major destinations is likely to see significantly increased competition between Australia, Indonesia, Russia and South Africa for alternative Asian markets.

Indonesia – the world's largest exporter of thermal coal - has already made it clear that it will be targeting Vietnam, Bangladesh and Pakistan to replace lower demand in China and India. Recent moves by Vietnam, Bangladesh and Pakistan to significantly reduce emphasis on coal power development will disappoint Indonesian thermal coal exporters.

The potential growth markets for Australian coal exporters increasingly have no chance of replacing the current "big 4" major markets. The energy technology transition as well as energy security and domestic employment concerns are closing out the opportunity for large increases in exports to countries like India, Pakistan and Bangladesh. The COVID-19 pandemic has accelerated the transition not slowed it.

The accelerating pace of the energy technology transition has significant implications for the Australian coal industry and questions the sense of adding more coal supply into a market set for long term decline.

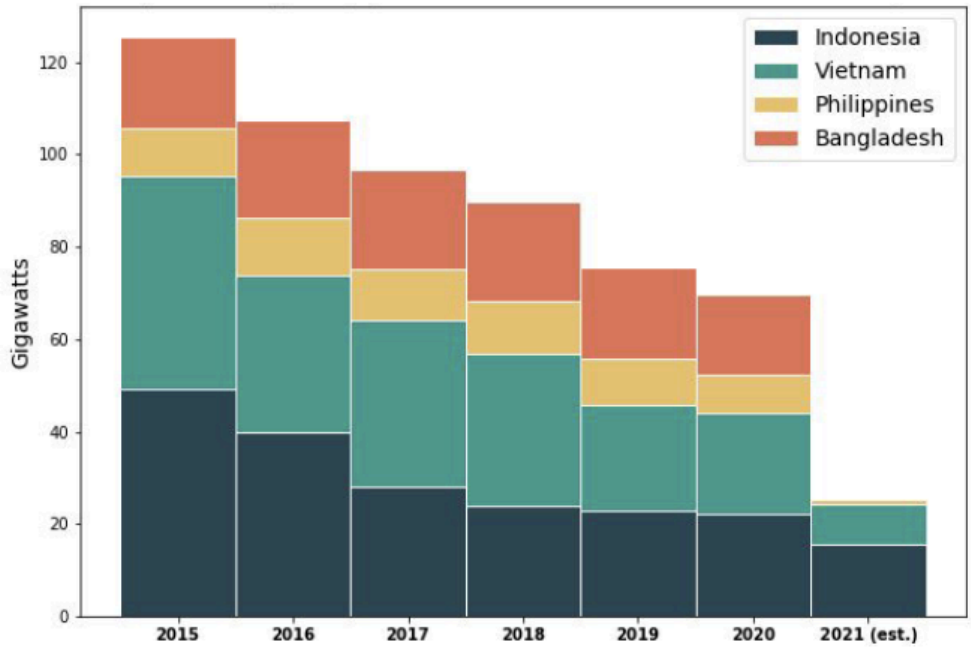
The Asian Coal Power Project Pipeline is Drying Up

Global demand for seaborne thermal coal dropped around 8% in 2020 as the world economy slumped during the height of the COVID-19 pandemic. Although a recovery in volumes can be expected in 2021, it seems unlikely that a recovery to pre-COVID levels will be seen.[1]

The drop in 2020 volumes was led by the EU, India and South Korea – all of which have policies in place to reduce thermal coal imports in the long term. Furthermore, far from slowing down the global energy transition, COVID-19 has accelerated it. Global coal demand likely peaked in 2018 and will never again reach that level (Figure 1).[2]

Australian thermal coal operations were loss making in 2020 when prices reduced to US$50/t[3] although have recovered now that prices are above US$80/t. However, higher coal prices are now a double-edged sword for thermal coal miners. From this point of the energy transition onwards, high thermal coal prices will kill long term demand as it makes coal-fired power even more expensive compared to ever-cheaper renewable energy.

Figure 2: Coal Power Capacity Planned for Construction, 2015-2021



Source: Global Energy Monitor

[1] Argus. Seaborne thermal coal imports drop by 8pc in 2020. 1 March 2021
[2] Bloomberg New Energy Finance. New Energy Outlook 2020. October 2020
[3] Argus. Australia's coal miners unprofitable at US$50/t. 2 March 2021

The first half of 2020 saw the global coal power fleet shrink for the first time on record as plant retirements outpaced new capacity commissioned.[4] The coal power project pipelines in South and Southeast Asia – supposedly the new demand centres of Australian thermal coal to replace Japan, China and South Korea – are drying up rapidly after an 80% decline since 2015 (Figure 2).

Ultimately, demand for Australian thermal coal will be set by the policies and actions of governments and companies in coal-importing Asian nations. The current status and outlook for coal-fired power in these nations has far more impact on the future of Australian thermal coal than the policies and ambitions of the Australian coal industry and state and federal governments.

Investors and Financiers Shifting Away from Coal

Nations like Vietnam and Bangladesh have noticed that it is increasingly difficult to finance their coal power plans as more and more financiers are shifting away from coal funding. This is driving them to cancel planned coal power plants. The list of banks that have new coal policies distancing themselves from further coal financing is now growing faster than ever and numbers well over 100 financial institutions.[5]

Recent additions to the list of financiers leaving thermal coal behind include major Japanese banks such as Mizuho and Sumitomo-Mitsui[6] that have historically been amongst the most significant financiers of coal-fired power in Asia.

In a highly significant moment in the history of coal power development, March 2021 saw the government-owned Japan Bank for International Cooperation (JBIC) state that it will stop funding coal power projects overseas.[7] JBIC has been a key lender and enabler of coal power finance across developing Asia.

Outside of Japan, companies involved in coal-fired power plant construction are now facing difficult questions from major investors. BlackRock – the world's largest asset manager – contacted Korean power utility and coal power developer KEPCO in May 2020 "seeking a clear strategic rationale for its investments in coal energy".[8] In October 2020, KEPCO announced that it will stop coal-fired power development overseas.[9]

COVID-19 did not slow down the rate at which banks continue to turn away from coal finance. As the list of banks that have abandoned coal expands, further coal-fired power development around the world will become increasing unlikely.

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[4] Carbon Brief. Analysis: The global coal fleet shrank for the first time on record in 2020. 3 August 2020
[5] IEEFA. Financial institutions are restricting thermal coal funding
[6] Reuters. Japan's SMFG likely to halt all new lending for coal power, sources say. 3 March 2021
[7] NHK. JBIC backs away from funding coal-fired plants. 3 March 2021
[8] IEEFA. Question time for KEPCO's board. 2 June 2020
[9] GCR. "No more overseas coal power projects," says South Korea's KEPCO. 16 October 2020

Thermal Coal Exports Long Term Outlook – Australia's Big Four Markets

Australian thermal coal exports have historically been dominated by four key markets.

Japan

Japan is Australia's largest thermal coal export destination which makes its pledge to achieve net zero carbon emissions by 2050 highly significant.[10]

The age profile of its operating coal power fleet means Japan was on track for a significant reduction in coal-fired power capacity in the long term even before the net-zero emissions announcement (Figure 3). This approaching, significant reduction in Japanese coal power capacity has now been confirmed – it has been revealed that the Japanese government is planning to retire as many as 100 older coal-fired power units by 2030.[11] This plan could see more than half of Japan's current coal power capacity taken offline by that date.[12]

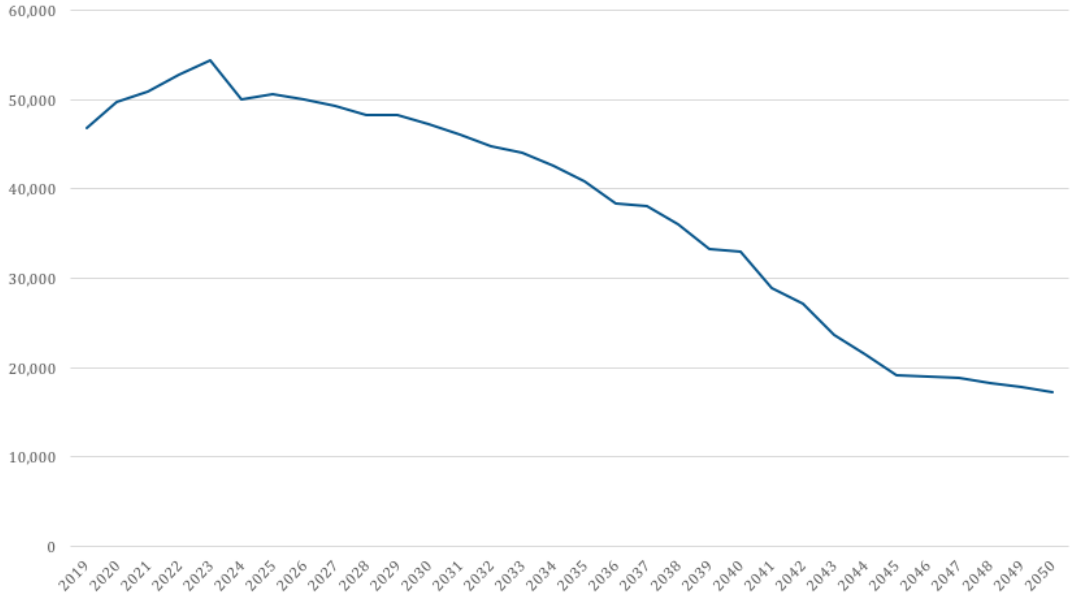
Meanwhile, the pipeline of coal-fired power plants under development is shrinking precipitously as projects get cancelled. Japan's pipeline of new coal-fired power plants has collapsed 80% in five years. From almost 12.7GW of project proposals in Japan's pipeline in January 2015, the latest figures put the pipeline at 2.5GW. It is now clear that no new coal plant proposals will ever be made in Japan.

Furthermore, with Japanese power demand expected to fall by 2030-31[13], coal-fired power in Japan will face increased competition from other sources. Japan is planning a hugely ambitious scale up of offshore wind, batteries and hydrogen technology to help meet its net zero by 2050 goal.

Japanese corporations are already following the governments lead on emissions. In addition to stating that it will shut down all of its older, inefficient coal power stations by 2030[14], JERA – the nation's biggest power generator – is targeting offshore wind and the conversion of all remaining coal power plants to run on ammonia in a bid to meet its own net zero by 2050 goal.[15] Tokyo Electric Power Company (TEPCO) announced in June 2020 an investment of up to US$18 billion on clean energy projects including offshore wind.[16]

[10] The Guardian. Japan's net zero by 2050 pledge another warning to Australia on fossil fuels, analysts say. 27 October 2020
[11] S&P Platts. Japan starts regulatory discussions on phasing out inefficient coal-fired power plants. 7 August 2020
[12] Argus Media. Japan mulls scrapping inefficient coal-fired units. 3 July 2020
[13] Argus. Japan's power demand forecast to fall by 2030-31. 22 January 2021
[14] Reuters. Japan's JERA to shut inefficient coal-fired power plants by 2030. 13 October 2020
[15] Bloomberg. Japan to Use Wind, Batteries to Meet Lofty 2050 Carbon Goal. 22 October 2020
[16] Reuters. TEPCO Renewable to spend $9-18 billion by 2035 on green power. 9 June 2020

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



Source: Global Energy Monitor, IEEFA calculations

Deregulation of the Japanese power market is also attracting new entrants to power generation with a focus on renewable energy. Telecommunications group NTT announced in June 2020 that it will invest US$9 billion to add more than 7GW of renewable energy in Japan by 2030.[17]

Meanwhile, the major Japanese trading houses are continuing to reposition their energy businesses by abandoning thermal coal mining – including Australian mines – as well as coal-fired power.[18] Most recently, Mitsubishi Corporation withdrew from a coal power proposal in Vietnam as the latter reduces its emphasis on coal-fired power development.[19]

Japan is planning to invest US$19 billion to help make hydrogen a major power source for the country by 2030.[20] The production cost of green hydrogen is currently expected to drop 60% by 2030 [21] and global investment in the technology accelerated sharply in 2020, unincumbered by the COVID-19 pandemic.

By the beginning of 2021 over 200 industrial hydrogen projects had been announced, more than 30 countries had released hydrogen roadmaps and governments have committed more than US$70 billion in public funding. The total investment of all announced projects will be US$300 billion through to 2030, should

[17] Nikkei Asian Review. NTT to join Japan's renewable energy sector with $9bn investment. 29 June 2020
[18] Reuters. Japan traders speed up coal asset cuts amid global decarbonisation push. 5 February 2021
[19] Reuters. Mitsubishi pulls out of Vinh Tan 3 coal project in Vietnam – sources. 26 February 2021
[20] Reuters. Japan to make hydrogen major power source by 2030: Nikkei. 8 December 2020
[21] McKinsey & Co., Hydrogen Council. Hydrogen Insights. February 2021

they all proceed.[22] This sudden increase in global hydrogen investment will see the cost of green hydrogen production fall even faster than recently predicted.

Transportation of hydrogen over long distances is likely take place in the form of ammonia which has a higher volumetric energy density than hydrogen whilst ships that can transport ammonia are already commercially available. The Japanese government is planning a role for ammonia in its thermal power fleet, replacing coal. It is aiming for a 20% ammonia co-firing rate at the nation's coal-fired power plants by 2030, with the aim of expanding beyond 50% thereafter. 100% ammonia-fired power generation will then be developed to help achieve net zero by 2050.[23] Mitsubishi Power has commenced development of the world's first 100% ammonia-fired power turbines, with commercialisation expected around 2025.[24]

China

China was Australia's second biggest thermal coal export destination in 2019. This changed significantly in the second half of 2020 when a diplomatic spat led to a ban on coal imports from Australia. In January 2021, there were no exports of Australian thermal coal to China for the first time in almost 20 years.[25]

Although there doesn't appear to be an end to the Chinese ban on Australian coal in the immediate future, this in itself doesn't necessarily threaten Australian coal export volumes. Instead there has simply been a rebalancing in the Asian seaborne thermal coal market. To replace Australian coal imports, China has been importing more from Indonesia (its largest supplier), Russia, Mongolia, South Africa and Columbia. In turn, India – which historically imports thermal coal mostly from Indonesia and South Africa – has turned to Australian coal as its usual suppliers shipped more to China.

However, China's moves to become self-reliant for thermal coal in the medium term, and its accelerating renewable energy roll-out, do threaten the balance of the entire Asian seaborne thermal coal market given it is the world's largest coal importer. The Australian thermal coal industry will be heavily impacted by this even if it is not exporting to China.

Significantly, the vast majority of thermal coal consumed in China is mined domestically with imports making up only a small percentage of total consumption. China produced 3.8 billion tonnes of coal domestically in 2020 whilst coal imports totaled 304 million tonnes.[26]

Improvements to domestic coal mining efficiency and output, coal rail logistics and power transmission infrastructure are underway to increase reliance on domestic coal and reduce imports. China's 2020 domestic coal output was the highest since

[22] McKinsey & Co., Hydrogen Council. Hydrogen Insights. February 2021
[23] Argus. Japan targets 3mn t/yr of ammonia fuel use by 2030. 8 February 2021
[24] Mitsubishi Power. Mitsubishi Power Commences Development of World's First Ammonia-fired 40MW Class Gas Turbine System. 1 March 2021
[25] Argus. China's ban on Australian thermal coal hits home in Jan. 4 March 2021
[26] Reuters. China's coal consumption seen rising in 2021, imports steady. 3 March 2021

2015[27] following expansions in coal mining capacity. Chinese rail transport capacity for coal was planned to be increased by more than 60 million tonnes in 2020. The new Haoji rail line transported 10 million tonnes of coal in the first half of 2020 but the capacity is planned to be ramped up to 200 million tonnes per annum. China's total bituminous and sub-bituminous coal imports in 2020 was 224 million tonnes.[28]

The world's longest ultra-high voltage transmission line is under construction to link coal-rich Xinjiang province in the west to the country's highly populated east. Coal transportation out of Xinjiang has proved difficult and the new transmission line is expected to reduce thermal coal imports into eastern China by about 30Mt per annum.[29]

China's latest five-year plan made clear that the nation intends to keep working to reduce the carbon intensity of its economy. However, at the same time China is intending to increase domestic coal production in order to improve energy security – an important concern for the world's largest importer of raw materials.[30] The implication for thermal coal exporters is clear – China wants to replace imported coal with domestic production.

In addition, increased emphasis on renewable energy will also squeeze out thermal coal imports. The Chinese government surprised many in September 2020 when it announced that it was targeting net zero emissions by 2030.[31] COVID-19 did not hold back China's accelerating renewable energy additions. The nation added more than 72GW of wind power in 2020, more than double the previous record. It also added 48GW of solar, the most since 2017.[32]

Following the government's lead, State Grid Corporation – the world's largest utility – revealed its own plan to reach carbon neutrality. State Grid is planning a major upgrade to its power grid over the next few years – including ultra-high voltage transmissions lines and power storage - in order to enable a move away from coal-fired power and reach peak carbon emissions as soon as possible.[33]

The major power generation utilities are also supporting the government's renewable energy drive. Huaneng is planning to add 80GW of wind and solar in order to reach 50% renewable energy capacity by 2025. State Power Investment Corporation is aiming for 60% renewable energy capacity by 2025. China Energy Investment and Datang have similar 2025 renewable energy addition and total capacity targets.[34] Huadian plans to add 75GW of renewables over the next five

[27] Reuters. China's 2020 coal output rises to highest since 2015, undermining climate pledges. 17 January 2021
[28] Argus. White Paper: Chinese ban on Australian coal disrupts Asia-Pacific trade. January 2021
[29] S&P Platts. Chinese thermal coal demand to fall with launch of new power transmission line. 4 July 2019.
[30] Bloomberg. This is How Top Polluter China Plans to be Greener by 2025. 5 March 2021
[31] S&P Platts. China's long march to zero carbon. 10 December 2020
[32] Bloomberg. China Blows Past Clean Energy Record with Wind Capacity Jump. 20 January 2021
[33] Bloomberg. China Power Giant Wants to Get Ahead on Xi's Emissions Goals. 2 March 2021
[34] Argus. China's State Grid sets peak emissions plan. 2 March 2021

years whilst closing 3GW of coal-fired power with the intention of bringing its carbon emissions to a peak by 2025.[35]

South Korea

In May 2020 the South Korean government unveiled a US$62 billion "New Deal" designed to refocus its post-coronavirus economy. The plan is based on two pillars – a "Digital New Deal" and a "Green New Deal" with the latter intended to move the nation away from coal-fired power and towards renewable energy.[36]

In addition to post COVID-19 recovery, this economic overhaul is also driven by South Korea's major air pollution problem, ranked the worst in all OECD countries. The government had already been taking action on the air pollution issue prior to COVID-19 by curtailing coal-fired power generation. Having previously suspended operations at older coal-fired power plants during March to June periods to reduce seasonal pollution extremes, the decision was taken at the end of November 2019 to extend closures to the December-February period as well. These anti-pollution measures led to the lowest first-quarter thermal coal imports into South Korea for 10 years during the Jan-March 2020 period, prior to the impact of COVID-19 on power demand.[37]

This decision on winter coal plant operation came only a few weeks after the South Korean government confirmed that six coal plants totalling 2.6GW will be retired by 2021, a year earlier than previously indicated, in an effort to reduce air pollution.[38]

In April 2019, South Korea's coal import tax was increased by another 28% to KRW46/kg (US$40/t). At the same time, the tax on LNG imports was cut by 75%.[39] This followed a 20% increase in the coal tax in April 2018. Even before COVID-19, the South Korean government was clearly attempting to prompt a shift away from coal use in power generation as part of an overall move away from coal and nuclear power and towards LNG and renewable energy. The third phase of South Korea's emissions trading scheme – which covers the 2021-2025 period – could also incentivise switching from coal thanks to a lower cap on emissions and a reduction in free allowances.[40]

Following South Korea's "Green New Deal", the government has announced its target to reach net zero emissions by 2050 in October 2020[41] in line with Japan and it has also revealed its new long term power plan.

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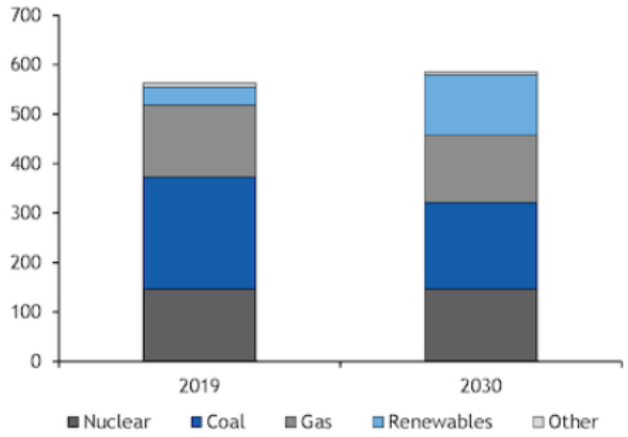
[35] Reuters. Exclusive: China Huadian to shut 3 GW of coal-fired power capacity by 2025 – chairman. 8 March 2021
[36] Forbes. South Korea Embraces EU-Style Green Deal For COVID-19 Recovery. 16 April 2020
[37] Reuters. South Korea's first-quarter thermal coal imports set for 10-year low on anti-pollution measures. 26 March 2020
[38] Reuters. S. Korea to close 6 older coal-fired power plants by 2021, from planned 2022. 1 November 2019.
[39] S&P Platts. South Korea to cut LNG taxes by 74% in April, raise thermal coal tax by 27%. 1 February 2019.
[40] Argus. Next phase of S Korea ETS boosts fuel-switch potential. 13 October 2020
[41] Reuters. South Korea's Moon targets carbon neutrality by 2050. 28 October 2020

Figure 4: South Korean Power Generation Outlook (TWh)



Source: Argus Media

Under the government's ninth basic electricity plan, coal-fired power generation is expected to decrease 23% by 2030 (Figure 4), reducing thermal coal consumption by around 19 million tonnes per annum. Coal-fired power capacity and utilisation will both go into decline over the period. A total of 30 coal-fired power plants are expected to be shut down by 2034. LNG-fired power capacity is set to increase but generation will actually drop as LNG plants change role from baseload to peaking plants that support higher renewable energy capacity.[42]

Renewable energy will make up 35% of total capacity by 2030 and 42% by 2034 according to the new plan. To meet this target, South Korea's current renewable energy capacity of 20GW will need to be quadrupled.[43] Offshore wind will play a major role and South Korea plans to build the world's largest offshore plant by 2030. At 8.2GW, the plant will be almost seven times larger than the UK's Hornsea project which is currently the largest in the world.[44]

Taiwan

Taiwan is also dealing with air pollution issues. State-owned power generator Taipower has initiated winter coal power generation restrictions to address air pollution as South Korea has done. At the beginning of 2021, the 5.5GW Taichung coal-fired power plant was running at less than 40% capacity amid air pollution concerns. In January 2021, the Taiwanese parliament passed a resolution that will see the 5.5GW Taichung coal power plant decommissioned by 2035 at the latest, and possibly two years earlier. The plant consumed more than 12 million tonnes of thermal coal in 2020.[45]

[42] Argus. Seoul reaffirms its commitment to reduce coal reliance. 6 January 2021
[43] Korea Herald. Korea to quadruple renewable power by 2034, downsize nuclear, coal. 15 December 2020
[44] Wood Mackenzie. South Korea's ninth Basic Plan for electricity – a step closer to carbon neutrality?
[45] Argus. Taichung coal plant to be moved to grid reserve. 8 February 2021

In addition, over the last five years the pipeline of proposed coal-fired power plants has shrunk from 2.4GW to zero after a series of project cancellations. Most recently, the 1,200MW Shenao power proposal was cancelled in October 2018.[46] This was the last major coal-fired power plant in Taiwan's pipeline.

Taiwan's renewable energy target requires a roll-out of 27GW of renewables by 2025.[47] Much of Taiwan's renewables development will be driven by offshore wind and solar. Major global offshore wind players are already present in the Taiwan market including Danish power utility Ørsted and offshore wind turbine manufacturers MHI Vestas and Siemens Gamesa. Taiwan looks like becoming a major hub for offshore wind as the industry builds its Asia focus in the next stage of global offshore wind development beyond Europe.

Offshore wind across Asia has the potential to displace a significant proportion of global seaborne thermal coal volumes. The IEA expects global offshore wind installations to more than triple to over 60GW by 2025,[48] and Asian nations have the potential to build a combined 100GW of offshore wind by 2030. With utilisation rates of offshore wind having the potential to reach 55%, if only 70% of this 100GW target is installed, this could still displace 300m-350m tonnes of thermal coal annually—about 35%-40% of the global seaborne thermal coal trade.[49]

Other Export Markets

The following nations shave been previously identified as growth markets for Australian coal exporters which will fill the gap left by declining imports by Australia's big four thermal coal export destinations. However, with the pace of the energy technology transition accelerating, and finance for coal power increasingly hard to come by, the opportunity for export growth into these markets is rapidly falling away.

India

India is the world's second largest thermal coal importer but, until recently, was not a major destination for Australian thermal coal. Indonesia and South Africa are India's principle sources of the thermal coal imports but the Chinese ban on Australian coal imports saw more Australian thermal coal exported to India in 2020.

However, like China thermal coal imports make up only a fraction of total consumption with far more thermal coal mined domestically by Coal India – the world's largest coal miner by volume. India has made it clear it intends to become

[46] Taiwan News. Government to scrap Shenao power plant project: Taiwan premier. 12 October 2018.
[47] Australian Government Trade and Investment Commission. Renewable energy and natural resources to Taiwan
[48] IEEFA. IEA: Offshore wind capacity could top 200GW by 2040. 26 September 2018.
[49] IEEFA. "Offshore wind power: the underexplored opportunity to replace coal in Asia", 30 August 2018.

self-reliant for thermal coal as it approaches peak coal consumption amid its rapid renewable energy roll-out.

In the past, India's coal self-reliance intention has yielded little result but COVID-19 has held back power demand growth and given India an opportunity to make progress in reducing imports. According to Indian coal secretary Anil Kumar Jain, India's decision to scale up efforts to reduce imports has come straight from Prime Minister Modi and is motivated by a desire to protect local coal mining jobs amid the global economic slump.[50]

State-owned Coal India, the world's largest coal miner, has been mandated by the government to replace at least 100 million tonnes of coal imports in the current fiscal year 2020-21.[51] The company has claimed that various measures it has taken to promote domestic coal use reduced imports by 71 million tonnes over the April 2020-February 2021 period.[52] In March 2021, Coal India announced an investment of US$6.4 billion on further coal mining projects to boost output and replace imports. The 32 projects will have a combined output of almost 200 million tonnes/year. India's coal imports totalled 249 million tonnes in the last fiscal year.[53]

A secretary to the Coal Ministry has stated that India is looking to replace 110-120 million tonnes of thermal coal imports with domestic fuel "in the next few years."[54] In an effort to free up the coal sector dominated by state-owned Coal India and to reduce thermal coal imports, the government has auctioned off large coal blocks for commercial mining. India's Coal Minister has claimed the move could save India US$5 billion of coal imports annually.[55]

India has now made it mandatory for coal importers to disclose future shipments, a move that is seen as further indication of the government's determination to reduce reliance on imports.[56] Companies have started to follow the government's lead on reducing imports. Jindal Power has stated that its move into commercial coal mining will mean that it will soon no longer need to import thermal coal.[57]

Any significant decline in Indian imports would send a major wave of knock-on impacts throughout the Asian seaborne thermal coal market, particularly for South Africa and India, but also for Australia as both nations would need to compete with Australia in other markets such as Vietnam.

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[50] Argus Media. India steps up initiatives to cut coal imports. 4 May 2020
[51] Economic Times Energyworld. CIL mandated to replace at least 100 MT of imports with domestic coal in FY21. 14 May 2020
[52] ET Energyworld. Coal India helped cut 71MT costly coal imports in current financial year. 2 March 2021
[53] Bloomberg. Coal India Approves 32 Mining Projects Worth $6.4 Billion. 9 March 2021
[54] Reuters. India plans deep cut in thermal coal imports in coming years. 25 August 2020
[55] ET Energyworld. Commercial mining likely to save Rs 30,000 crore annually on thermal coal import bill: Pralhad Joshi. 18 June 2020
[56] Reuters. India makes future coal import disclosures mandatory. 24 December 2020
[57] Argus. India's Jindal Power looks to end coal imports. 5 November 2020

Meanwhile, the Indian renewable energy rollout continues in pursuit of the government's target of 450GW of renewables by 2030. The plummeting cost of wind and solar is bringing forward the date of peak thermal coal consumption in India as it is around the world. Power Minister R. K. Singh has stated that India will replace retiring coal power capacity with renewable energy and that non-fossil fuel based power generation will make up 60% of total capacity by 2030.[58]

Vietnam

Vietnam has been cited as a key growth market for Australian coal exports but, while volumes have recently been increasing, the potential for Vietnam to replace export volumes lost to the four biggest markets as they transition away from coal imports is starting to look increasingly limited.

Most of the coal power projects in Vietnam's project pipeline have not reached financial close and Vietnam is finding it increasingly difficult to secure finance for coal power projects as banks abandon coal lending.[59] The country's National Steering Committee for Power Development recommended in early 2020 that plans for coal power expansion should be scaled down.[60] The long development times for coal projects – often running significantly over schedule – has also raised concerns that such projects won't be built quick enough to meet Vietnam's growing power demand.

It is now expected that the next iteration of Vietnam's power development plan - National Power Development Plan VIII – will significantly reduce further coal power projects with up to 17GW of proposed coal power plants cancelled or postponed until after 2030 (which means they will most likely never be built).[61]

With coal-fired power unable to meet power demand growth expectations in a timely affordable manner, the new plan will increase focus on quicker-to-build and cheaper renewable energy. Vietnam has already seen a recent boom in renewable energy installations which put the slow development timeframes of coal power into full context.

The nation added more than 4GW of solar power within a 12-month period up to the end of June 2019. The average construction period for those solar plants was just 275 days.[62] Vietnam followed up this extraordinary growth in solar development with an even more astonishing figure - the nation added 9GW of rooftop solar during 2020, dealing another blow to the remaining coal power project pipeline.[63]

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[58] Argus. India seeks to cut reliance on coal power generation. 7 October 2020
[59] Bloomberg. Banks Shunning Coal Financing Bodes Badly for New Plants in Asia. 25 February 2020
[60] Bloomberg. Coal's Sell-By Date Just Moved Closer. 12 March 2020
[61] IEEFA. Vietnam's EVN Faces the Future: Time to Get Renewables Right. September 2020.
[62] Rystad Energy. Vietnam overtakes Australia in commissioned utility PV. 4 July 2019.
[63] IEEFA. Vietnam's extraordinary rooftop solar success deals another blow to the remaining coal pipeline. 12 January 2021

Vietnam is also developing wind energy and has begun construction of offshore wind. Global wind turbine giant Vestas has an offshore wind project pipeline in Vietnam of over 1GW.[64] In July 2020, a memorandum of understanding was signed for development of another offshore wind project with a capacity of 3.5GW.[65] The government has so far approved a pipeline of 11.6GW of wind power capacity by 2025.

On top of this, Australian coal exporters are likely to face increasing competition from Indonesia - the world's largest thermal coal exporter - as it loses demand from its own key markets of China and India. Indonesia's energy ministry stated in June 2020 that it is targeting increased exports to Vietnam, Pakistan and Bangladesh.[66] South African exporters have also been targeting Vietnam as they have seen exports to India and South Korea decline in 2020.

Bangladesh

There is growing realisation in Bangladesh that its plan to expand power generation through imported coal-fired power plants is setting it on course for significant overcapacity, financially unsustainable capacity payments and increased cost of power generation.

Bangladesh already has far more power capacity than it needs with up to two-thirds of total power capacity lying idle at a time.[67] Overall utilisation of the nation's total power generation capacity was just 40% in fiscal year 2019-20 and is set to drop even lower over the next five years as more capacity is added in excess of power demand growth.[68]

Prompted by the increasing difficulty in getting finance for coal-fired power as more banks withdraw lending for coal, Bangladesh's power minister revealed in late June 2020 that the government is reassessing its plans for coal-fired power development. Even China – was has increasingly looked like the last lender to coal projects globally – has now stated that it will no longer consider financing coal proposals in Bangladesh.[69] In February 2021 it was reported that the government had decided to cancel nine proposed coal-fired power projects.[70]

Bangladesh's new 8th five-year plan – released at the end of December 2020 – gives a clear insight into the nation's new power priorities and the direction that its new Power System Master Plan (due in 2021) will take.[71] The new plan is set to approach

[64] IEEFA. Latest deal pushes Vestas' near-shore wind turbine pipeline in Vietnam above 1GW. 13 August 2020.
[65] The Asset. Consortium signs MoU on giant offshore wind project in Vietnam. 29 July 2020.
[66] Reuters. Indonesia eyes Vietnam as it seeks to diversify thermal coal exports. 31 July 2020
[67] IEEFA. Bangladesh's power system headed for financial disaster due to overcapacity in coal, LNG power. 18 May 2020
[68] IEEFA. Bangladesh's power system overcapacity problem is getting worse. 20 January 2021
[69] Daily Star. $3.6b Chinese loan uncertain after Dhaka drops projects from agreed list. 4 March 2021
[70] Daily Sun. Govt to drop nine coal-fired plants. 24 February 2021
[71] Government of Bangladesh. 8th Five-Year Plan: July 2020 – June 2025. December 2020

overcapacity via a new power demand growth projections and by emphasising better use of existing capacity instead of continued build-out of new power stations.

With the 8th five-year plan acknowledging that increased dependence on imported coal and LNG will increase the cost of power generation and worsen the financial position of the power system, renewable energy is also expected to become a new priority for Bangladesh. The plan acknowledges that subsidies for fossil fuels have held back the development of solar and wind power in Bangladesh and that such subsidies will need to be wound back to facilitate an increase in renewable energy ambition.

Bangladesh, along with Pakistan and Vietnam has been earmarked by thermal coal exporters as growth markets that could replace declining demand in traditional export markets. The end of Bangladesh's coal power project pipeline will disappoint exporters across the Asian seaborne thermal coal market.

Pakistan

Like Bangladesh, Pakistan is similarly burdened by overcapacity and capacity payments within its power system.[72] In fiscal year 2019-20, the overall utilisation of Pakistan's thermal power generation fleet dropped to just 37% according to National Electric Power Regulatory Authority (NEPRA) data.

Capacity payments to power generators are on course to reach Rs1.5 trillion (US$9.4 billion) per annum by 2023. The expense of overcapacity is making the build-up of debt within Pakistan's power system (known as circular debt) even worse. The debt build-up is to a large degree caused by subsidised power tariffs. It is expected that total circular debt across the power system will reach Rs2.8 trillion (US$ 17.6 billion) by the end of June 2021. The inevitable consequence of expensive power generation and unsustainable debt is a rise in consumer power tariffs. A Rs1.95 increase in base tariff was approved in February 2021.

The unaffordable nature of surplus coal-fired power built under the China-Pakistan Economic Corridor program has also led the Pakistan government to seek debt relief from China. The request is likely to take the form of longer loan repayment terms in order to reduce capacity payments to the coal power generators.

With thermal power increasingly making the nation's power system financially unsustainable, the Prime Minister announced that Pakistan "will not have any more power based on coal" at the December 2020 Climate Ambition Summit.[73] This is a highly significant statement for a nation that was until then intending to add 27GW of coal-fired power between 2030 and 2047.

Significantly for Australian thermal coal exporters, all of that planned capacity was to have been fuelled by domestic coal. Pakistan has long since moved away from

[72] Bloomberg. Nation Plagued by Power Shortages Suddenly Has Too Much Electricity. 27 January 2021
[73] IEEFA. Pakistan announces 'no new coal-fired power'. 14 December 2020

further reliance on imported thermal coal and has cancelled several plants[74] that were intended to have been fuelled by imports, most recently in June 2020.[75] Other coal power proposals have had their plans changed to use domestic rather than imported coal.

Such is the refocus away from imports that, in Pakistan's latest long term power capacity addition plan, coal-fired power stations fuelled by imported coal are expected to run at just 14% utilisation rate by 2030.[76]

With a renewable energy target of 30% of capacity by 2030, Pakistan is now clearly intending its power system to be dependent on wind, solar, hydro and domestic coal. As with Bangladesh, thermal coal exporters who were hoping for increasing demand from Pakistan to offset declining offtake from traditional markets are set to be disappointed.

Philippines

In October 2020, the Philippines Department of Energy called a moratorium on further coal-fired power development.[77] This followed the Department of Energy's earlier caution against an overreliance on inflexible technologies such as coal that cause grid instability.[78] The Philippines clearly sees the need to modernize its power system by shifting away from coal-fired power and towards renewables.[79]

This move by the government followed actions by the Philippines largest conglomerates – that are also the major power generators. In April 2020, AC Energy – a subsidiary of Ayala Corporation - announced it would finalize coal exit plans by 2025 with full divestment from coal power to be completed by 2030.[80]

Following the Department of Energy's moratorium announcement, the nation's banks have also been distancing themselves from coal. In December 2020, the CEO of Rizal Commercial Banking Corporation stated "No more coal, no more coal. I'll say that slowly - NO MORE COAL".[81]

Increasing Competition in a Declining Market

The energy transition is continuing at such pace that, not only are Australia's traditional thermal coal export markets turning away from coal power, but the so-

[74] Dawn. Govt puts major CPEC power project on hold. 14 January 2019
[75] Express Tribune. PTI government abandons K-Electric's coal project. 25 June 2020
[76] IEEFA. Pakistan's new 27-year power plan risks locking in long-term overcapacity, leaving imported coal and LNG plants stranded. 3 September 2020
[77] Department of Energy. DoE Sec. Cusi declares moratorium on endorsements for greenfield coal power plants. 27 October 2020
[78] IEEFA. The Philippines considers a power sector future without new coal. 9 June 2020
[79] IEEFA. Philippines coal moratorium highlights dramatic pivot to renewable energy investment for lower prices and power system resilience. 3 November 2020
[80] IEEFA. Conglomerate Ayala to finalize coal exit plans by 2025. 21 April 2020
[81] Manila Bulletin. RCBC to stop funding coal power projects. 10 December 2020

called potential growth markets are shifting too. Some export markets will potentially phase out in the medium term rather than in the longer term.

China and India in particular - with their huge domestic coal mining industries - are threatening to squeeze out thermal coal imports in the medium term through domestic coal production increases and an accelerating roll out of renewable energy.

As demand in the Asian seaborne thermal coal market fades, Australia will not be the only exporter impacted. The other major exporters into the Asian market will also need to seek alternatives as their primary markets decline. The loss of the major destinations is likely to see significantly increased competition between Australia, Indonesia , Russia and South Africa for alternative Asian markets.

As the world's largest thermal coal importer, the future of China's thermal coal imports will have major knock-on effects around the Asian market. A decline in China's thermal coal exporters will impact Indonesia above all as it is China's major overseas supplier. Indonesia – the world's largest exporter of thermal coal - will seek other markets to fill the gap, very possibly at the expense of Australia, Russia and South Africa. The impact could be compounded if Indonesia's number two export destination – India – also begins to reduce imports.

Indonesia has already made it clear that it will be targeting Vietnam, Bangladesh and Pakistan to replace lower demand in China and India.[82] Recent moves by Vietnam, Bangladesh and Pakistan to significantly reduce emphasis on coal power development will disappoint Indonesian thermal coal exporters.

Australia and South Africa may be hoping that the higher energy content of their exported coal may give them an advantage over lower energy Indonesian coal. However, there is little evidence that importers will favour higher energy coal in the long term unless the energy-adjusted price is favourable.

Risk of Over-Supply

The potential growth markets for Australian coal exporters increasingly have no chance of replacing the current "big 4" major markets. The energy technology transition and energy security and domestic employment concerns are closing out the opportunity for large increases in exports to countries like Vietnam, India and Bangladesh. The COVID-19 pandemic has accelerated the transition not slowed it.

The accelerating pace of the energy technology transition has significant implications for the Australian coal industry and questions the sense of adding more coal supply into a market set for long term decline.

[82] Reuters. Indonesia eyes Vietnam as it seeks to diversify thermal coal exports. 31 July 2020

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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