

Executive Summary

India's energy future will help shape seaborne thermal coal markets for decades to come.

India is the world's second largest importer of thermal coal, and has the potential to be an ongoing source of demand growth — a bright light for thermal coal exporters confronted with falling demand in Europe, North America and North East Asia. But while India is one of the great hopes for thermal coal exporters (alongside Southeast Asia), it also presents significant risk. If India's thermal coal imports decline, there could be substantial implications for seaborne markets. As Australia already exports large volumes of metallurgical coal to India, this report primarily focuses on the more uncertain, but much larger, thermal coal market.

India's future energy needs are difficult to understate. India is the world's third largest energy consumer. It has the world's second largest population and is one of world's fastest growing economies. The twin pressures of economic and population growth are expected to propel future energy demand in India. The nation has made significant progress in reducing energy poverty, but there were still 168 million people without access to electricity in 2017, and reliability is an ongoing issue. India also faces a range of other challenges in its electricity market, which have flow-on effects to the coal sector. These include inefficient state-owned generators, overcapacity in power generation, bottlenecks in transmission, distortionary subsidies, and financial pressure on distribution companies, due to losses and the underpricing of electricity.

India's thermal coal consumption is likely to continue to increase next decade, and possibly beyond, in order to meet India's increasing energy requirements. Since we released the first *Coal in India* report in 2015, India has become the world's second largest coal consumer. Further growth in thermal coal consumption is likely, despite India's authorities indicating that no new coal-fired power stations — beyond the ones already under construction

— are needed over the next five years. Given India has overbuilt its coal-fired power capacity for current levels of electricity demand, and coal-fired power generators are running well below capacity, India already has sufficient coal-fired power capacity for coal consumption to lift during the 2020s. A reversal of this trend would require India to prematurely close coal power stations before the end of their planned lives, and to rapidly address the huge challenges — regarding grid stability — that these closures would bring. Thermal coal is expected to remain a major part of India's energy mix for decades.

In the long term, the outlook for thermal coal usage in India depends heavily on the prospects for other energy sources, particularly the pace of expansion in renewable generation in India. India has set itself ambitious renewable energy targets, and recently signalled a potential target of 500 GW of installed renewable capacity (excluding large-scale hydro) in 2028, up from 79 GW in mid-2019. To achieve its renewable generation target, India would need to overcome major technical, political and economic challenges.

The pace of India's coal production growth will be the key driver of its future thermal coal import needs. India is the world's second largest producer of thermal coal, and production is dominated by the state-owned company Coal India Limited, the world's largest coal producer. Coal India has ambitions to raise domestic coal production to 1 billion tonnes by 2025–26. While India has lifted growth in thermal coal production over the last few years, it is still tracking well short of the production levels required to meet this target. India's coal output is expected to grow, but at a slower pace than government targets.

India's coal sector continues to face substantial challenges, and although reforms have moved in a positive direction, the pace of change remains slow. India's complex bureaucracy, socioeconomic issues, and financially-strained power sector are all impacting negatively on output. Approvals and land acquisition remain the primary factors

weighing on production growth, with other issues — productivity, competition, investment, transport and domestic pricing schemes — further compounding the challenges. The Indian government will need to continue to pursue reforms and policy changes to address remaining barriers to production growth.

The outlook for India's thermal coal imports is finely balanced. With around 80 per cent of India's thermal coal requirements satisfied domestically, the future for India's thermal coal imports depends on small movements in the balance of India's future coal production and consumption. In the short-term, imports are likely to remain high, as domestic output falls short of usage. In the longer term, there are more uncertainties. It is possible to imagine a scenario where India's imports lift rapidly on the back of strong growth in energy demand, challenges integrating renewable generation into the electricity grid, and barriers to increasing domestic coal production. But it is also possible to see a scenario where imports fall, due to lower than expected energy demand, the rapid reduction of barriers to higher domestic coal output, and a faster than expected uptake of renewables. We reach no firm conclusions in this report. Rather, we highlight the key drivers, current trajectory and main uncertainties likely to influence future developments.

The Indian government is aiming for self-sufficiency in thermal coal, but faces considerable barriers to achieving this goal. Illustrative of these challenges are statements in November 2014 by the Indian energy minister that India would stop importing thermal coal within two or three years. While India's thermal coal imports did fall back after peaking in 2014, they recovered to near their previous levels in 2018.

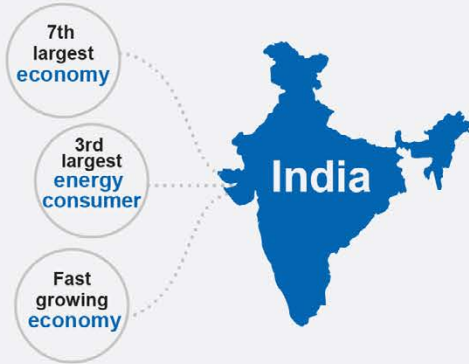
Australia is currently not a significant supplier of thermal coal to India. In 2018, Australia exported just 5 million tonnes of thermal coal to India — 2.3 per cent of Australia's thermal coal exports, and just 4.5 per cent of India's thermal coal imports. There are a number of reasons for limited Australian thermal coal exports to India. These include regulated electricity prices in India (which make it difficult for utilities to pay price premiums for higher

quality Australian coal), compatibility issues between Australian coal and India's largely sub-critical coal-fired power generation fleet, and limited Indian investment in Australian thermal coal mines (with the notable exception of Adani's Carmichael coal mine in the Galilee Basin in Queensland). Indian investment has the potential to lift thermal coal exports by vertically integrating coal mines overseas with power plants in India, thereby reducing market risks.

There are opportunities for Australia to lift thermal coal exports to India, although barriers will remain. The commencement of Adani's 10 million tonne Carmichael mine could triple Australia's thermal coal exports to India — although from a low base. The development of other Indian-owned mines in Australia, and the prospect that Indonesia and South Africa may not meet all of India's thermal coal import needs, could further boost Australian thermal coal exports to India. India has also made changes to plant efficiency and coal quality standards, which should be more favourable for Australian suppliers of high-energy, low-ash coal. There are also other opportunities for Australia in India, particularly in the mining equipment, technology and services (METS) sector. Australian METS companies are well placed to assist with India's desire to improve the productivity of domestic coal mines through advanced technology.

India's metallurgical coal demand and imports are expected to grow, and the outlook is characterised by fewer uncertainties. While our analysis is focused on thermal coal, we also consider metallurgical coal at various points in this report. The outlook for metallurgical coal in India is less uncertain than for thermal coal. India has ambitious targets to increase its steel production, and little in the way of domestic metallurgical coal resources. As such, India will likely need to import more metallurgical coal over the next few decades. For Australia — the world's largest metallurgical coal producer and the supplier of over 70 per cent of India's metallurgical coal imports — growing Indian demand will continue to represent a major opportunity.

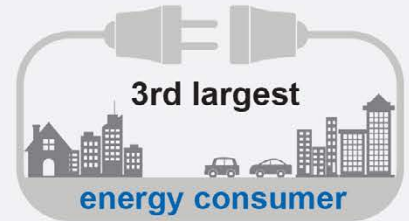
India has large and rapidly growing energy needs



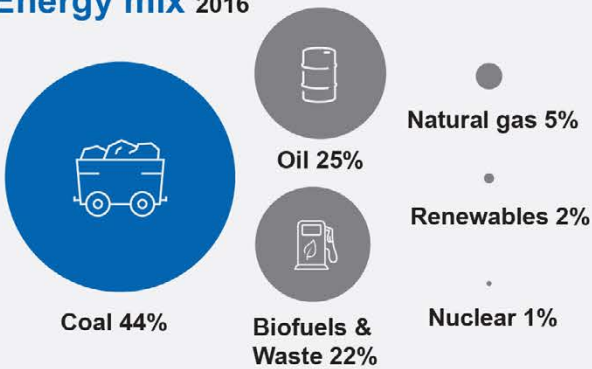
population and economic growth



will drive demand for energy



Energy mix 2016



Around 1/2 billion people have **gained access** since 2000

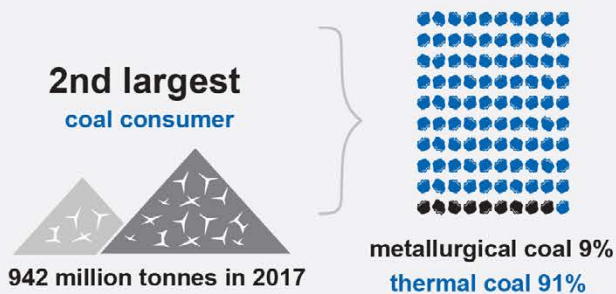


168 million people **without access** to electricity in 2017



Complex institutional arrangements make **market operation** and **reforms** difficult in the power and coal sectors

India's thermal coal consumption is set to increase over the next decade and possibly beyond



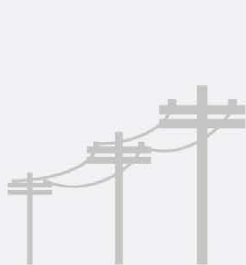
39 GW of coal-fired power capacity under construction



12% employs subcritical technology

68% employs supercritical technology

20% employs ultra-supercritical technology



Coal will remain a major source of electricity generation, but its share will fall



India's production of thermal coal is also increasing, but it remains to be seen whether it can catch up with demand

5th largest
proved coal reserves



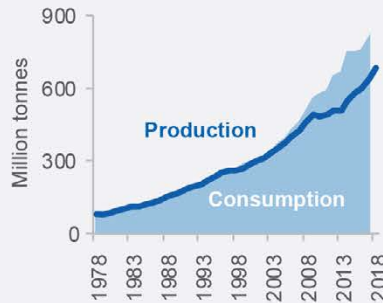
101 billion
tonnes

2nd largest
producer of
thermal coal



80% of India's
coal produced
by state-owned
Coal India

India's thermal coal output hasn't kept up with its consumption over the past decade



Challenges facing India's coal sector



The outlook for India's thermal coal imports is finely balanced and uncertain

2nd largest
importer of
thermal coal



Imports thermal coal from



Relies on imports for



1/5

of its thermal coal consumption



Imports could fall or climb, depending on domestic production



India unlikely to achieve its goal of self-sufficiency in thermal coal in the short term

While Australia is not currently a significant supplier of thermal coal to India, there are opportunities

	India's share of Aus exports, 2018	Aus share of India's imports, 2018
Thermal	2%	4%
Metallurgical	25%	71%



Australia could **triple** thermal coal exports to India. Further growth possible if barriers addressed



Australia positioned to **expand** metallurgical coal supply to India as its steel sector grows



METS an opportunity **>40** Australian METS companies operating in India's coal sector