

King Coal

IN THE LAND DOWN UNDER

KELLY BRIDGES



The ALCOA Anglesea open-cut coal mine extracts exclusively brown coal, which is used to generate energy at the nearby power station.

Australia sits upon a throne of coal. The nation's brown and black coal industries bring immense wealth through the exportation and industrial uses of coal, as well as the jobs it creates. Although Australia benefits from coal economically, it is also hurt by it environmentally. Coal combustion, extraction, and transportation have far-reaching impacts. For example, these processes result in pollution, greenhouse gas emissions, and reduction of biodiversity through coral bleaching. Despite outcry from the public, the Australian Liberal National Party under Tony Abbott's administration does little to mitigate these industrial harms, as they fear economic ruin if the country chooses to divest from coal. Economic ruin, however, is avoidable, as long as Abbott's administration seeks alternative options to coal, such as solar energy and liquefied natural gas.

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Although LNG and solar energy are good alternatives to coal, it is important to understand the relationship Australia has with coal economically. Black coal, which has a significantly higher energy value than brown coal, is primarily used for the generation of electricity and the production of plastics.¹ Brown coal, or lignite, is used in the production of heat for industrial and domestic uses including electrical power stations.² The country has enough black coal for another 110 years, while its supply of brown coal

could last up to half of a millennium.³ Its coal supply is one of the largest in the world, and the island nation owns the fourth largest share of global coal reserves. Additionally, Australia's black and brown coal is responsible for the production of 200,000 direct and indirect jobs, \$6 billion annually in salaries for direct jobs, three-fourths of the country's total electrical energy, and \$60 billion of the country's GDP.⁴ Furthermore, Australia is one of the world's largest producers and exporters of coal. With such a huge presence, coal has long played an important role in Australia's history.⁵

As early as 1791, black coal was discovered in Australia. By 1900, coal mining expanded from New South Wales and Tasmania to Victoria, Western Australia and Queensland.⁶ In the 1920s, Victoria saw a rapid increase in coal production during which it produced 468,000 tons of brown coal. The industry continued to see positive growth throughout Australia well into the 1960s, when countries in the Asia-Pacific rim began to industrialize. Countries undergoing industrialization required coal, primarily black coal, to power many of their endeavors. Although expansion was a key theme for most of coal's 200-year reign, by the 1970s expansion began to slow down in many states. In 1971, for example, the production of black coal in Victoria ended. This period of declination only lasted a decade, however, because the 1980s encountered a boom in the mining industry.⁷

Although Australia's coal dynasty has strengthened the country's economy, it has also had negative impacts on the environ-

¹ Coal Fact Sheet. (2012). Retrieved April 7, 2015, from http://www.australianminesatlas.gov.au/education/fact_sheets/coal.html#black

² Ibid

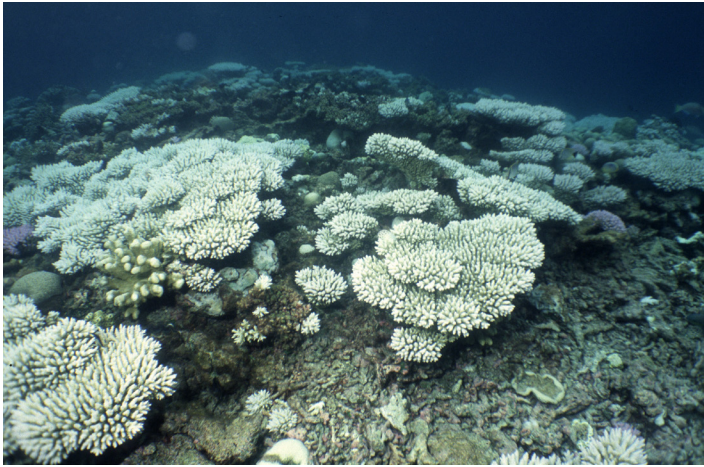
³ Australians for Coal. (2014). Retrieved April 7, 2015, from <http://www.australiansforcoal.com.au/>

⁴ Coal for Jobs. (2014). Retrieved April 7, 2015, from <http://www.australiansforcoal.com.au/coal-4-jobs.html>

⁵ Coal For The Economy. (2014). Retrieved April 7, 2015, from <http://www.australiansforcoal.com.au/coal-4-the-economy.html>

⁶ Mudd, G. (2009). The Sustainability of Mining in Australia: Key Production Trends and Their Environmental Implications for the Future. (Research Report No RR5), 1-227.

⁷ Lockie, S., Franetovich, M., Sharma, S., & Rolfe, J. (2008). Democratisation versus engagement? Social and economic impact assessment and community participation in the coal mining industry of the Bowen Basin, Australia. Impact Assessment and Project Appraisal, 26(3), 177-187.



Increasing ocean temperatures are causing coral to expel the algae living in their tissues and become sick, turning once vibrant communities, full of life, like the Great Barrier Reef, into empty wastelands of bleached coral.

ment. Coal can have deleterious effects depending on the way it is mined. Other aspects of coal's life cycle also have terrible environmental consequences. Coal usage results in the pollution and emission of greenhouse gases through combustion, mining, and transportation. Furthermore, coal transportation contributes to coral bleaching in the Great Barrier Reef. These impacts cannot be overlooked.

The most obvious impact is that coal-extraction can result in high levels of pollution. In particular, open-cut coalmines, which are used in New South Wales and Queensland, can pollute the atmosphere and water sources. From 2008 to 2009, open-cut coalmines throughout the aforementioned states were responsible for emitting 97% of copper byproduct and 98% of lead byproduct into the air. Additionally, 67% of selenium byproduct and 83% of zinc byproduct were emitted into water sources.⁸ Greenhouse gases are also emitted by open-cut coalmines due to oxidation processes at low-temperatures, and spontaneous combustion. In Australia, up to 8.200 kg of carbon dioxide equivalents are emitted per year.⁹

Coal transportation also results in pollution, greenhouse gas emissions, and environmental degradation. While en route to export ports, coal dust is often swept by the wind, which in turn reduces air quality.¹⁰ Aside from air quality, transportation of coal plays a role in climate change through the emission of greenhouse gases. In 1996, rail transportation of products, including coal, resulted in 1.4% of the country's total emissions, while water transportation accounted for 2.0%.¹¹ The environmental impacts from coal transportation are expected to grow significantly in the coming years, especially with regards to transportation via bulk sea freighters.

As a result of the amount of coal exported, port capacity will triple by 2020 in Queensland. This expansion of ports for coal exportation, as well as the transportation of coal via cargo ships can have negative impacts on the Great Barrier Reef – Australia's natural treasure.

First, the expansion of ports for transportation requires dredging. Dredging is problematic as it includes the "removal of benthic biota, smothering in spoil dumping areas, and elevated turbidity around dredging and dumping sites."¹²

However, another problem with port expansion is increased traffic, as it results in environmental damage through "abrasion from grounding, scarring from anchoring and propeller turbulence, introduction of non-native (pest) species, and leeching of toxic anti-foulants into coastal waters."¹³ Dredging and traffic affect water quality, coral reef health, and the health of other marine life (e.g. mammals and fish). In addition to port expansion, transportation also poses increased risk for shipping accidents. Ever since 1987, over 600 shipping accidents have occurred in the Great Barrier Reef region resulting in water pollution.¹⁴ Approximately, 3,000 shipping movements occur every year in the area – many of which carry coal.¹⁵

Finally, of course, coal combustion for industrial uses and transportation is a large producer of greenhouse gases as well. In 2005, coal combustion was responsible for emitting 41% of all carbon dioxide emissions worldwide.¹⁶ In Australia, where 55% of electricity is generated from black coal and 30% from brown coal, coal combustion is responsible for a large share of greenhouse gas emissions.¹⁷ While mining itself accounts for 5% of all greenhouse gas emissions, electricity generation accounted for another 6% of emissions.¹⁸

Although coal poses a large risk to the environment, it appears that Australia is not ready to let go of its geological monarch. During the G20 summit in November, Prime Minister Tony Abbott made a series of statements in defense of coal. When speaking to world leaders, Abbott stated, that a "good economy is good for the environment" and "as the world's largest producer of coal, I'd like to stand up for coal."¹⁹ A month earlier, Abbott also declared, "Coal is vital for the future energy needs of the world. So let's have no demonization of coal. Coal is good for humanity."²⁰

Although coal has numerous fiscal benefits from exports and fees – over \$28.3 billion in federal and state taxes, royalties, and transport/port services charges²¹ – as well as direct and indirect jobs produced, Abbott's statements ignore coal's environmental consequences.²² Under Abbott's administration, little will be done to address and mitigate these consequences. While Abbott's stance on the economy plays a large role in this projection, so too do his beliefs on climate change. Abbott is a fierce denier of anthropogenic climate change, calling the notion "crap" in 2009.²³ Additionally, Tony Abbott has criticized solutions that address climate change, such as carbon trading, by arguing that the market cannot trade an "invisible substance."²⁴

⁸ Weng, Z., Mudd, G., Martin, T., & Boyle, C. (2012). Pollutant loads from coal mining in Australia: Discerning trends from the National Pollutant Inventory (NPI). *Environmental Science & Policy*, 19-20, 78-89.

⁹ Carras, J., Day, S., Saghaei, A., & Williams, D. (2009). Greenhouse gas emissions from low-temperature oxidation and spontaneous combustion at open-cut coal mines in Australia. *International Journal of Coal Geology*, 78, 161-168.

¹⁰ Castleden, W., Shearman, D., Crisp, G., & Finch, P. (2011). The Mining And Burning Of Coal: Effects On Health And The Environment. *The Medical Journal of Australia*, 195(6), 333-335.

¹¹ Lenzen, M. (1999). Total requirements of energy and greenhouse gases for Australian transport. *Transportation Research Part D: Transport and Environment*, 4, 265-290.

¹² Grech, A., Bos, M., Brodie, J., Coles, R., Dale, A., Gilbert, R., . . . Smith, A. (2013). Guiding principles for the improved governance of port and shipping impacts in the Great Barrier Reef. *Marine Pollution Bulletin*, 1-13.

¹³ Ibid

¹⁴ Grech, A., Bos, M., Brodie, J., Coles, R., Dale, A., Gilbert, R., . . . Smith, A. (2013). Guiding principles for the improved governance of port and shipping impacts in the Great Barrier Reef. *Marine Pollution Bulletin*, 1-13.

¹⁵ Haynes, D. (2001). Great Barrier Reef Water Quality: Current Issues. Great Barrier Reef Marine Park Authority, 1-97.

¹⁶ Morrice, E., & Colagiuri, R. (2013). Coal mining, social injustice and health: A universal conflict of power and priorities. *Health & Place*, 19, 74-79.

¹⁷ May, J., & Brennan, D. (2003). Life Cycle Assessment of Australian Fossil Energy Options. *Trans IChemE*, 81(B), 317-330.

¹⁸ Lenzen, M. (1998). Primary energy and greenhouse gases embodied in Australian final consumption: An input-output analysis. *Energy Policy*, 26(6), 495-506.

¹⁹ Taylor, L. (2014, November 15). Tony Abbott tells G20 leaders he backs coal, despite pleas on climate change. Retrieved April 7, 2015, from <http://www.theguardian.com/world/2014/nov/16/tony-abbott-g20-leaders-coal-climate-change>

²⁰ Chan, G. (2014, October 13). Tony Abbott says 'coal is good for humanity' while opening mine. Retrieved April 7, 2015, from <http://www.theguardian.com/world/2014/oct/13/tony-abbott-says-coal-is-good-for-humanity-while-opening-mine>

²¹ Coal For The Economy. (2014). Retrieved April 7, 2015, from <http://www.australians-forcoal.com.au/coal-4-the-economy.html>

“The prime minister’s stance has not only upset the renewable energy sector, of which the chief executive of the Australian Solar Council remarked that Tony Abbott’s soul is covered in coal dust.”

Abbott’s administration, which belongs to Australia’s rightwing Liberal National Party (LNP), has also implemented policies that harm renewable energy industries. In 2013, Queensland’s now-former premier, Campbell Newman, proposed a punishment tax of \$200 for domestic households utilizing solar energy.²⁵ At the time, 308,000 homes in the state relied on solar energy for electricity, representing nearly a quarter of all detached and semi-detached houses.²⁶ Furthermore, 2 million households across the continent use solar energy as an alternative to coal.²⁷ In 2013, Abbott also refused to fund a “1 Million Solar Roofs” program that would provide over \$500 million to the Environment Ministry to create ‘solar towns’ and schools,²⁸ as well as provide rebates to one million homeowners to encourage the construction of domestic solar panels and hot water systems.²⁹ Moreover, Abbott has stated that he would like to reduce the country’s renewable energy target.³⁰

The prime minister’s stance has not only upset the renewable energy sector, of which the chief executive of the Australian Solar Council remarked that Tony Abbott’s soul is covered in coal dust,³¹ but also the population at large. Australian satire news sites joked that Abbott “will be expecting coal this Christmas,”³² and that he has long consumed coal as a way to get energized.³³ Furthermore, a host of protests across the country also mark the populace’s discontent with coal. In October, Pacific Islanders from the Marshall Islands, Fiji, Vanuatu, the Solomon Islands, and other countries in the region, blockaded the second largest coal exportation port, which is located in New South Wales. The protesters, who belonged to the Pacific Climate Warriors coalition, used canoes to block freight ships from leaving the port. The event consisted of hundreds of individuals both on land and sea.³⁴ Protestors have

also taken to blockading railways,³⁵ attaching themselves to water pumps at mining facilities³⁶ and diggers,³⁷ and scaling buildings³⁸ and trees.³⁹ There have also been more traditional forms of protesting. At the G20 Summit in November, protesters marched while holding banners reading, “QUIT Coal, Oil, Gas.”⁴⁰

In order to quell civil unrest and environmental degradation, Tony Abbott’s administration must support alternative energy sources, such as LNG. Currently, the government is investing in six LNG projects; however, the industry has the potential to expand.⁴¹ In 2013, Australia was the third largest exporter of LNG.⁴² Moreover, last year Australia earned \$16.4 billion in export revenue by shipping nearly 25 million tonnes of LNG. Exports are projected to increase four-fold by 2020.⁴³ Additionally, Australia “has the capacity to produce 33 billion cubic metres of LNG a year...[or] 24.4 million tonnes.”⁴⁴ Solar energy is also slated to expand in the coming decades. By 2030, 50% of renewable energy production in Queensland is expected to come from solar energy.⁴⁵ In funding both industries, the government can reduce greenhouse gas emissions, pollution, and loss in biodiversity.

Australia must steadily divest from coal to mitigate environmental degradation. Australia is a beautiful country rich in not only geological wealth, but also ecological wealth. While at the G20 conference, President Obama told an audience that it is important that countries like Australia address climate change to protect the world’s natural wonders like the Great Barrier Reef. He stated, “I want my daughters to be able to come back and I want them to be able to bring their daughters or sons to visit [the Great Barrier Reef].”⁴⁶ Prime Minister Abbott believes that to save the planet, including the reef, from the harms of coal, that the Australian economy must suffer; however, that is not the case. Australia’s future lies in solar energy and LNG. Not only do these renewable energy sources greatly mitigate the environmental harm coal creates, but they also stimulate the economy through the creation of jobs and exportation. The environment, as well as society, will benefit from divestment and reinvestment.

²² Coal Resources. (n.d.). Retrieved April 7, 2015, from <http://www.ga.gov.au/scientific-topics/energy/resources/coal-resources>

²³ Readfearn, G. (2014, June 15). What does Australian prime minister Tony Abbott really think about climate change?. Retrieved April 7, 2015, from <http://www.theguardian.com/environment/planet-oz/2014/jun/16/what-does-australian-prime-minister-tony-abbott-really-think-about-climate-change>

²⁴ Murphy, K. (2013, July 15). Abbott on carbon trading: ‘non-delivery of an invisible substance to no one’. Retrieved April 7, 2015, from <http://www.theguardian.com/world/2013/jul/15/abbott-carbon-trading-invisible-substance>

²⁵ Parkinson, G. (2015, February 5). Tony Abbott’s soul ‘covered in coal dust’, says solar industry. Retrieved April 7, 2015, from <http://reneweconomy.com.au/2015/tony-abbotts-soul-covered-in-coal-dust-says-solar-industry-59663>

²⁶ Moore, T. (2013, June 3). Solar power users will fight back, LNP warned. Retrieved April 7, 2015, from <http://www.brisbanetimes.com.au/queensland/solar-power-users-will-fight-back-lnp-warned-20130603-2nlc9.html>

²⁷ Parkinson, G. (2015, February 5). Tony Abbott’s soul ‘covered in coal dust’, says solar industry. Retrieved April 7, 2015, from <http://reneweconomy.com.au/2015/tony-abbotts-soul-covered-in-coal-dust-says-solar-industry-59663>

²⁸ Bolt, A. (2014, June 15). Solar Promise Fried. Retrieved April 7, 2015, from http://blogs.news.com.au/heraldsun/andrewbolt/index.php/heraldsun/comments/solar_promise_fried/

²⁹ Promise check: One million additional solar energy roofs over 10 years. (2014, November 6). Retrieved April 7, 2015, from <http://www.abc.net.au/news/2014-11-07/one-million-solar-roofs-over-ten-years-promise-check/5731272>

³⁰ Parkinson, G. (2015, February 5). Tony Abbott’s soul ‘covered in coal dust’, says solar industry. Retrieved April 7, 2015, from <http://reneweconomy.com.au/2015/tony-abbotts-soul-covered-in-coal-dust-says-solar-industry-59663>

³¹ Ibid

³² Coal Distances Itself From Tony Abbott. (2014, December 15). Retrieved April 7, 2015, from <http://www.sbs.com.au/comedy/article/2014/11/17/coal-distances-itself-tony-abbott>

³³ Talwar, R. (2015, March 15). Tony Abbott Shows Support For Mining Industry By Eating Lump of Coal. Retrieved April 7, 2015, from <http://thesauce.co/tony-abbott-shows-support-for-mining-industry-by-eating-lump-of-coal/>

³⁴ Garrett, J. (2014, October 14). Pacific Climate Warriors in Australia to protest coal industry. Retrieved April 7, 2015, from <http://www.theguardian.com/environment/2014/oct/17/pacific-islanders-blockade-newcastle-coal-port-to-protest-rising-sea-levels>

³⁵ Climate Change Protest Halts Coal Train in Newcastle, Australia. (2015, March 30). Retrieved April 7, 2015, from <http://earthfirstjournal.org/newswire/2015/03/30/climate-change-protest-halts-coal-train-in-newcastle-australia/>

³⁶ Golden Guitar Winner Arrested At Coal Mine Protest. (2015, January 27). Retrieved April 7, 2015, from <http://themusic.com.au/news/all/2015/01/27/golden-guitar-winner-arrested-at-coal-mine-protest/>

³⁷ Selby, J. (2015, December 1). David Pocock, former Australian rugby captain, issued warning after arrest at coal mine protest. Retrieved April 7, 2015, from <http://www.independent.co.uk/news/people/david-pocock-former-australian-rugby-captain-issued-warning-after-arrest-at-coal-mine-protest-9894987.html>

³⁸ Validakis, V. (2013, May 6). Anti-coal protesters target Melbourne’s CBD. Retrieved April 7, 2015, from <http://www.miningaustralia.com.au/news/anti-coal-protestors-target-melbourne-s-cbd>

³⁹ Ibid

⁴⁰ Hundreds protest in G20 host city amid heavy police presence. (2014, November 15). Retrieved April 7, 2015, from <http://rt.com/news/205819-australia-summit-protest-brisbane/>

⁴¹ Benefits of LNG. (n.d.). Retrieved April 7, 2015, from <http://www.appea.com.au/oil-gas-explained/benefits/benefits-of-lng/>

⁴² Australia. (2014, August 28). Retrieved April 7, 2015, from <http://www.eia.gov/countries/country-data.cfm?tips=as>

⁴³ Benefits of LNG. (n.d.). Retrieved April 7, 2015, from <http://www.appea.com.au/oil-gas-explained/benefits/benefits-of-lng/>

⁴⁴ Can Australia become the world’s leading LNG exporter? (2013, October 20). Retrieved April 7, 2015, from <http://www.abc.net.au/news/2013-10-14/macfarlane-lng-exports/5014018>

⁴⁵ Parkinson, G. (2015, February 5). Tony Abbott’s soul ‘covered in coal dust’, says solar industry. Retrieved April 7, 2015, from <http://reneweconomy.com.au/2015/tony-abbotts-soul-covered-in-coal-dust-says-solar-industry-59663>

⁴⁶ Piotrowski, D. (2014, November 15). ‘I want my grandchildren to be able to see the Great Barrier Reef in 50 years’: Barack Obama’s stark warning to Tony Abbott over climate change. Retrieved April 8, 2015, from <http://www.dailymail.co.uk/news/article-2835672/I-want-grandchildren-able-50-years-Barack-Obama-warns-Tony-Abbott-threat-climate-change-Great-Barrier-Reef.html>