

HD Australian Coal: Should It Be Left in the Ground?

BY Hans A Baer

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Many Australians view themselves as living in a "lucky country" because it has an abundance of mineral resources. James Goodman and David Worth, however, maintain that the **mining** boom has been a "curse" in disguise. It has sharpened socioeconomic and community divisions, contributed to political conflict, and resulted in "ecological mal-development" with serious environmental consequences. This applies to **coal** in that it not only contributes to air and water pollution, but is also a major source of carbon dioxide emissions and thus a major contributor to climate change. Despite its relatively small population, Australia is the world's fifth largest **coal** producer after **China**, the US, India, and Indonesia. It contains 6% of the world's black **coal**, making it sixth in terms of **coal** deposits behind the US (31%), Russia (21%), **China** (13%), India (8%), and South Africa (7%). Furthermore, Australia is the third biggest brown **coal** producer, placing it behind Germany and Russia.

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In the case of Australia, Europeans discovered black **coal** in the Newcastle, New South Wales area in 1791 and began exporting it in 1799. These early **coal mining** activities made a significant contribution to the progress of European settlement in Australia. The progressive spread of settlement to other locations in Australia led to further discoveries and **mining** of black **coal**, including the discovery of **coal** near Ipswich in 1825, at Cape Paterson in Victoria in 1826 and Irwin River in Western Australia in 1846. Knowledge of the existence of brown **coal** in Victoria dates back to 1857. The Yallourn North open-cut **coal** mine began production in 1889. Over 200 years later about 9,100 **million** metric tons of black **coal** and about 2,300 **million** metric tons of brown **coal** have been mined, and the Australian **coal** industry provides significant employment, capital investment, and domestic and export income to the national economy.

Despite its relatively small population, Australia is the world's fifth largest **coal** producer after **China**, the United States, India, and Indonesia. It contains 6 percent of the world's black **coal**, making it sixth in terms of **coal** deposits behind the United States (31 percent), Russia (21 percent), **China** (13 percent), India (8 percent), and South Africa (7 percent).² Furthermore, Australia is the third biggest brown **coal** producer, placing it behind Germany and Russia. It is the second largest coking **coal** producer after **China**.³

With three-fourths of its black **coal** production exported, Australia was the world's leading national **coal**-exporter (until 2011, when it slipped to number two behind Indonesia). Australian **coal** is exported to more than thirty-five countries and provides 30 percent of global **coal** exports, contributing about 500 **million** tons each year to global greenhouse gas emissions. Australia exports about half the **coal** that it mines in exchange for gross revenue of some \$45 **billion** per annum, with state governments receiving 10 percent royalties from this amount.⁴ Table 1 depicts some vital statistics on Australian **coal mining**.

The **Coal Mining** Industry in Australia

Although Australia has numerous companies involved in **coal mining**, the Big Four players in the Australian **coal mining** industry (BHP Billiton, Rio Tinto, Glencore Xstrata, and Anglo American) are all

primarily foreign-owned and operated. BHP Billiton is reportedly the world's largest resource **company**; it is involved not only in the production of **energy** and metallurgical **coal** but also aluminum, **copper**, nickel, silver, titanium, **uranium**, **oil**, and gas. BHP has 100 percent ownership of NSW (New South Wales) **Energy Coal**, which produces open cut **coal** and is also involved in the production of metallurgical **coal**, with 100 percent ownership of Illawarra **Coal** in New South Wales; 50 percent ownership of BHP Billiton Mitsubishi Alliance, which operates an integrated mine, rail and port system; and 80 percent ownership of BHP Mitsu **Coal** which engages in open cut **coal mining**. In addition to **coal** mines in South Africa, the Swiss-based Xstrata has **coal mining operations** in various sites in Queensland and a site in New South Wales. It exports about 80 percent of its Australian thermal **coal** production to utility companies in various countries, including Japan, South Korea, Taiwan, and Mexico. Rio Tinto **Coal** operates nine properties and produces sulphur steam **coal** for electricity generation plants, metallurgical coking **coal** for **iron** and steel mills, and **coal** for export. Finally, Anglo American (UK-Australia) operates five mines in Queensland and one in New South Wales. As part of their growing **mining** empires, Gina Rinehardt (reportedly the richest woman in the world, with holdings of some \$17 **billion**) and multi-**billionaire mining** magnate Clive Palmer (who formed his own political party called the Palmer United Party in the 2013 election) have elaborate plans to open up the huge Galilee coalfields in central Queensland.⁵

Sinclair Davidson and Ashton de Silva make a distinction between the **coal** extraction industry and the **coal** economy. They assert that "for every job created in **coal mining** 3.7 jobs are created nationally in the Australian economy making up a direct and indirect workforce of over 180,000 people in 2011-12." ⁶ Relying in part upon Australian Bureau of Statistics data, Davidson and de Silva report the following gross value contributions of the **coal** industry, the economy, and the resource economy, respectively, in terms of "total output, supply and demand side effects, to the overall Australian economy in 2011-12: **coal** industry 1.8 percent, **coal** economy 4.2 percent, and resource economy 23.7 percent."⁷ They also note that in 2011-2012 there were 49,000 employees in the **coal** industry and 181,200 employees in the **coal** economy.

The **coal** seam gas (CSG) industry is a derivative of the **coal** industry per se and has been on the rise over the past several years or so in Australia. **Coal** seam gas refers to methane that is trapped within pores and fractures in underground **coal** deposits. Companies such as ExxonMobil, BP, Shell, and Chevron dominate the gas industry. In 2009-2010, CSG accounted for approximately 10 percent of gas production in Australia, and is now growing. In Queensland, CSG provides approximately 90 percent of the domestic gas supply, and a number of projects to convert CSG to LNG (liquid natural gas) for export are underway.

Coal for Domestic Consumption and Export

Coal constitutes a significant source of Australia's domestic **energy** consumption. It relies upon both steaming black **coal** and brown **coal** for electricity production but also upon natural gas, hydroelectricity, and small amounts from **wind** or **solar** sources, depending upon the state. In terms of the percentage of electricity generated from **coal**, Australia is in fifth place internationally, after Mongolia, South Africa, Poland, and **China**.⁸ Moreover, in contrast to steelmaking, which relies only on black **coal**, Australian electricity generation relies on both black **coal** and the even dirtier brown **coal** still in abundance in the Latrobe Valley in eastern Victoria, which creates even more carbon dioxide emissions per unit than black **coal**. Coking **coal** is used for steel production and by-products of coke-making include **coal** tar, ammonia, light oils, and **coal** gas. **Coal** is also used in the production of cement manufacturing, food processing, paper production, and **alumina** refineries.

As Table 2 illustrates, reliance on **coal**-fired power plants varies considerably among the various political jurisdictions.

The Australian Government provides the statistics on Australia's fossil-fuel related exports, including **coal**. The export data for 2010-2011 can be seen in Table 3. Australia has nine major **coal**-exporting terminals which loaded nearly 290 **million** tons of **coal** in 2010-2011 and eleven major deepwater ports with facilities to export petroleum products.

Greenhouse Emissions Australian from **Coal** at Home and Abroad

Thirty-four percent of Australia's greenhouse gas emissions come from burning black and brown **coal**, primarily for electricity generation but also for steel-manufacture and cement manufacture. In large part due to heavy reliance on **coal** for electricity production, of developed societies, Australia has the highest CO₂ emissions per capita, even higher than the United States.⁹

Aluminum smelting accounts for about 13 percent of Australia's electricity consumption, most of which comes from **coal**-fired power plants.¹⁰ As a result of this, in contrast to most other countries which rely on hydroelectric power for smelting, Australia's aluminum industry has the highest greenhouse gas intensity in the world, accounting for around 6 percent of Australia's total emissions.

The production, supply and use of **coal** seam gas also results in greenhouse gas emissions. The Department of Climate Change and **Energy** reports:

Fugitive emissions of methane are a significant source during the production phase. This includes methane released from exploration drilling, production testing and well completion, and gas production activities including processing, venting and flaring. Methane is a potent greenhouse gas, with a global warming potential more than 20 times that of carbon dioxide over 100 years.

In 2008-09, fugitive emissions from the natural gas sector, which includes CSG as well as conventional gas, were estimated to be 9.3 **million** tonnes of carbon dioxide equivalent (CO₂e), or around 1.6% of national inventory total.

Other sources include fugitive emissions during transportation and supply (for example leakage from pipelines), emissions for fossil fuel use during the development and operation of CSG [**coal** seam gas] facilities, and emissions from end-use combustion of CSG (for example for heating or electricity generation)."

Various studies have indicated that Australia actually outsources more CO₂ emissions from **coal** exports than it generates domestically. Guy Pearce states:

In total, the **coal** we burn at home and export generates close to a **billion** tonnes of carbon dioxide annually-more than 1 in every 30 tonnes generated globally from fossil-fuel burning. For a country with 1 in every 313 of the world's people, this is polluting well above our weight. Ships laden with a single load of Australian **coal** can each carry the annual emissions equivalent to 25,000 cars. Our exports alone generate almost 700 **million** tonnes of CO₂ annually, which is almost 15 percent more than Australia's entire annual greenhouse-gas emissions. Yet currently our **coal** exports are projected to nearly double from 231 **million** tonnes per annum in 2004-2005 to 438 **million** in 2029-30.¹²

Mudd provides an even grimmer picture concerning Australia's outsourcing of greenhouse emissions in noting that if "you look at Australia's **coal** exports in 2012, these alone are responsible for some 800 Mt [**millions** of metric tons] of greenhouse gas emissions-nearly double Australia's emissions."¹³

The Nexus of the **Coal Mining** Companies and Federal and State Governments

At the state and federal levels, both Coalition (Liberal and National parties) and Australian Labor Party (ALP) governments have consistently subsidized the exploitation of Australia's **coal** and natural gas supplies and supported the expansion of **coal** exports. The Greenhouse Mafia, a consortium of industries involved in the production of fossil fuels and **coal**-based electricity generation, "has dominated almost every greenhouse-related consultative committee established by the federal government and its agencies."¹⁴ Just as this was the case for the federal ALP governments under Prime Ministers Kevin Rudd (in both 2007-2010 and again in 2013) and Julia Gillard, it is even more so under the Coalition government, led by Tony Abbott, who was elected prime minister in September 2013. In his observation that "governments have fanned a concept of national identity built on notions of economic success and personal status measured by material **acquisition**," Tony Cutcliffe adds: "In Australia, this prosperity has its roots and stability entrenched in unbridled consumption of cheap **energy** provided by fossil fuels."¹⁵ Australian governments have traditionally subsidized the costs to private enterprise of large-scale development projects and worked in close concert with corporations, including **mining** companies. Large state government investments in electricity generation and ports and harbor developments function often as a subsidy to the private sector to encourage mineral exports, including, of course, **coal**. **Mining** companies have played a key role in Australian politics and have been involved in the ouster of two Labor governments: the Whitlam government in 1977 and the Rudd government in 2010. Conservative forces, including ones in the **mining** industry, contributed to the ouster of Prime Minister Gough Whitlam because of his government's plan to nationalize **energy** resources, and its interference with U.S. military and intelligence **operations** based in Australia.¹⁶ Pearce observes:

Mining, metals, and **energy** industries enjoy **billions** of dollars in tax breaks, fuel excise rebates, cheap electricity contracts, royalty holidays and infrastructure.... In Queensland, the state government is subsidizing 'clean **coal**' and is also spending \$5.4 **billion** on a **Coal** Transport Infrastructure Program. In New South Wales, half a **billion** dollars in federal money is being spent in the Hunter Valley alone to improve railway infrastructure to increase **coal** exports.¹⁷

The Australian **Coal** Association (ACA) is part and parcel of the Greenhouse Mafia which also includes the Minerals Council of Australia (MCA), the Business Council of Australia (BCA), and the Australian Greenhouse Network (AIGN). The ACA represents the interests of blackcoal production in New South Wales and Queensland and by the 1990s had become a major donor to both the Liberal and Labor parties. The BCA consists of the CEOs of more or less the top 100 major corporations situated in Australia. The AIGN reads like a Who's Who of the Australian corporate sector, particularly the fossil fuels

industry, and includes the Australian Aluminum Council, the ACA, the Australian Petroleum and Exploration Association, the MCA, the National Generators Forum, Alcoa World Aluminum-Australia, BP Australia, Caltex, Chevron Australia, ExxonMobil, Origin Energy, Rio Tinto Australia, Santos, Shell Australia, Woodside Petroleum, and Xstrata Coal Australia. Both Liberals and the ALP have received millions of dollars since 1998 from these corporations directly or indirectly represented by AIGN.

In 2003 the Australian Coal Association formed COAL21 Fund, a consortium of representatives from the coal and electricity industries, unions, federal and state governments, and the research community. The COAL21 Fund planned to raise over \$1 billion over a ten-year period from a voluntary levy on coal production to support the "precommercial demonstration of low-emission technologies in the power generation sector" and research and development.¹⁸

The coal industry keeps expanding with governmental support. In April 2008 the federal government gave the go-ahead for a multi-billion dollar expansion of Gladstone, which will result in another 84 million tons of coal being exported annually. Despite his insistence that climate change was the great moral challenge of this generation, Rudd announced on December 12, 2008 that \$580 million of public money would be allocated to the expansion of coal facilities in the Hunter Valley and the Port of Newcastle, predicted to increase coal exports from Newcastle from 97 to 200 million tons per annum.¹⁹ The New South Wales government gave Newcastle Coal Infrastructure Group, a consortium of six mining companies, permission to construct a new \$900 billion coal port. According to NSW Department of Planning estimates, the 66 million tons that could be handled by the new coal port "would release 174 million tonnes of greenhouse gas when burnt in overseas power station."²⁰ Even while preparing its Carbon Pollution Reduction Scheme legislation, which never was passed, the Rudd government poured huge subsidies into coal-fired power plants. Along with budgeting \$200 million to increase the capacity of Eraring coal-fired power plant in New South Wales and assisting with the construction of two new coal gas-fired power plants in Bayswater and Mt Piper and the retrofitting of the existing coal-fired power plant at Munmorah, it directed significant funds away from renewable energy initiatives to develop 'clean coal' technology. The Victorian, New South Wales, and Queensland governments also provide big funding and policy support for carbon capture and sequestration (CCS). The Victorian government, with the dirtiest coal, has made CCS a central feature of its future energy development.

In September 2008 the Rudd government established a Global Capture and Storage Institute, with \$100 million, to promote research into CCS, with a view to creating twenty commercial plants by 2020. The Institute estimated that the technology would not be commercially viable until emissions cost \$60 a ton and it would increase electricity prices by up to 78 percent. In November 2008, Minister of Energy Martin Ferguson announced the formation of the National Low Emissions Coal Initiative, to be funded through the National Low Emissions Coal Fund outlined in the Carbon Pollution Reduction Scheme (CPRS). The proposed CPRS included a Coal Sector Adjustment package of \$250 million over five years for coal-mining operators to clean up their coal.

In 2012 the Australian Government released its Energy White Paper which proclaims its commitment to a "clean energy economy" by seeking to "provide secure, reliable, clean and competitively priced energy to consumers while building national wealth through the safe and sustainable exploitation of our energy resources."²¹ It goes on to state, "Over the next two and a half decades, Australia's energy production is projected to more than double, largely due to export growth. We are the world's largest coal exporters and third-largest uranium producer, and in future years will be the world's second-largest liquefied natural gas (LNG) exporter. Our energy exports will continue to support higher living standards for billions of people in our region."²²

The report projects energy production will be boosted by coal seam gas and potentially shale oil and gas. Australian CSG production increased from 2 percent to 11 percent of total gas production in the five years prior to 2010-2011 and can be expected to be supported by three CSG-to-LNG projects being constructed near Gladstone, Queensland. The report also optimistically projects that renewable energy will account for at least 20 percent of domestic electricity production by 2020 and this may rise further to around 40 percent by 2035. And that by 2050 most of Australia's conventional fossil fuel power generation will, it is projected, have been replaced by wind, solar, and geothermal energy sources. Then-Minister of Energy Martin Ferguson launched Santos's CSG project in Gladstone, Queensland in January 2011. Gina Rinehart has obtained conditional government approval for the first of two huge coal mines in the Galilee Basin.

How the new Coalition government will proceed in supporting the coal mining and coal seam gas industries remains to be seen. However, Abbott has gone on record in favoring the growth of coal shipments through the Great Barrier Reef, the development of another mega coal mine, and has defended CSG-arguing that farmers will benefit by the construction of roads to facilitate this new industry.

The Anti-Coal Campaign as a Part of the Australian Climate Movement

In frustration at the lack of action on the part of the Coalition (Liberal-National parties) government under Prime Minister John Howard from 1996 to 2007, around the beginning of the present century a growing number of Australians began to form local grassroots climate action groups (CAGs). These groups along with various environmental NGOs, regional climate action groups, special climate action groups, and socialist groups constitute the most significant new social movement in Australian society-although one that at the moment is in somewhat of a lull for complex reasons, including the passage of a Carbon Price Mechanism in 2012 that the Coalition government has promised to dismantle. The nationwide anti-coal campaign by and large is embedded in the climate movement and includes groups such as the Green Party, Rising Tide, Greenpeace, Friends of the Earth, Climate Emergency Action Network in South Australia, socialist groups Socialist Alliance and Solidarity, numerous CAGs, and Lock the Gate situated in Queensland and New South Wales.²³

Among its various campaigns, certain sectors of the Australian climate movement have called for the closure of coal-fired power plants and the cessation of coal mining, coal seam gas exploration, and coal exports, and have expressed vehement opposition to carbon capture and sequestration. Anthropologist Linda Connor and her colleagues examined the formation in 2000 of the Anvil Hill Project Watch Association (AHPWA) on the part of Wybong residents who were concerned about the damage that the planned Anvil Hill coal mine would have on local flora and fauna.²⁴ AHPWA became a member of the Anvil Hill Alliance (AHA) which emerged in 2006 when the New South Wales government approved development of the mine. Greenpeace and Rising Tide became involved in the campaign to stop the Anvil Hill mine by October 2005. The AHA found itself opposed by diverse "pro-mining civil society groups" which include "mining industry associations and unions representing mine and energy workers and coal exporters, all with shifting positions and alliances."²⁵ The Construction, Forestry, Mining and Energy Union (CFMEU) came to constitute a middle group between the Anvil Hill Alliance and the pro-mining civil society group in that, while in coalition with the coal producers and the New South Wales Minerals Association, it embarked on an advertising campaign noting that "climate change threatened miners' jobs and calling for the Kyoto Protocol to be ratified; for a 60% emissions reduction target by 2050; and for more investment in 'clean coal technology.'"²⁶

Of the various climate action groups, Rising Tide has been the staunchest opponent of Australian coal-exporting activities. Building upon the concern of local people about environmental degradation, water shortage, pollution, and the threat of biodiversity from coal mining, Rising Tide and Green Peace introduced into the campaign a strong warning about the climate change threat. A week before the 2009 Copenhagen climate talks Rising Tide staged a daylong blockade of the rail line that feeds into the coal port at Newcastle. It also organizes an annual "People's Blockade of the World's Biggest Coal."

Greenpeace has also adopted a strong anti-coal agenda. It led the way during the Howard government days of anti-coal campaigning when on July 27, 2005 teams of its activists occupied a 2.5 million ton coal stockpile and one of four huge coal loaders. Greenpeace maintains Australia is well positioned to implement renewable energy resources, such as solar photovoltaic, concentrating solar thermal, wind, wave and geothermal energy. It strongly opposes carbon capture and sequestration and drew attention to the problems associated with Rudd's proposed Clean Coal Initiative:

First, it dangerously distracts us from efforts we should be making now to convert to renewable energy-based power generation____. Second, CCS, like nuclear power, is too expensive, too risky, safe storage is not certain, and it can't do the job to cut emissions in the timeframe we need. Third, there are big questions in any case over liability in the case of failure to work. Any money, public or private, that goes into CCS is wasted, a missed opportunity to roll the renewable solutions that are ready to go right now.²⁷

Climate activists mounted protests against the operation of the Hazelwood coal-fired power plant in the La Trobe Valley in both September 2009 and October 2010, and the twin coal-fired plants at Port Augusta, South Australia in September 2009. The Hazelwood plant reportedly is the largest single source of greenhouse gas emissions in Australia, being "responsible for 18 million tonnes of greenhouse pollution each year (15 per cent of the state's annual emissions)."²⁸ In a pathbreaking alliance, farmers and graziers have joined with climate activists in the Lock the Gate movement, a national coalition of 122 community groups and hundreds of individuals concerned about CSG. Lock the Gate encourages landowners not to enter into negotiations that permit CSG companies to explore for CSG on their land. In its Call to Country campaign, Lock the Gate has called upon the federal government to place a moratorium on coal seam gas and other unconventional gas mining and to reject proposals for coal ports, mega-mines, dams, and unconventional gas wells. The strong anti-CSG sentiment in rural communities has been assisted by the U.S. documentary Gasland. Friends of the Earth Melbourne has been sponsoring the Stop Coal campaign and called on the Victorian government to ban CSG development.

Is There Light at the End of the Tunnel?

At the moment **coal** appears to be a hegemonic industry in Australia with staunch support from the new Coalition government and the new ALP opposition. Nevertheless, the opposition to the **mining** and export of **coal** are not completely off the radar screen. The Greens, with nine members in the Senate and one in the House of Representatives, remain the most visible challenge to the **coal** industry. The Socialist Alliance, which does run in selected federal, state, and local electorates, has been calling for the nationalization of the **mining** industry and public utilities which theoretically would provide the most viable strategy for leaving **coal** in the ground. Unfortunately, its electoral victories have been confined to city councils in the City of Moreland (northern suburbs of Melbourne) and the City of Fremantle in West Australia. Recently, a new campaign called Fossil Free Australia has been urging universities, religious institutions, local councils, and state governments to divest from fossil fuel industries. As a country of some 23 **million** people, Australia is a relatively small player on the international politics terrain. Hopefully, however, Australian climate activists can provide both inspiration to and draw hope from climate activists, including anti-**coal** activists, elsewhere around the world, including the United States.

Notes

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Hans A. Baer teaches in the Development Studies Program at the University of Melbourne but previously had taught in various other universities in the United States, Australia, and at Humboldt University in East Berlin. He has published nineteen books on a variety of topics.

CO gpeaci : Greenpeace International | sants : Santos Ltd

IN i111 : Coal Mining | i231 : Non-metallic Mineral Mining/Quarrying | imet : Mining/Quarrying | i1 : Energy | ibasicm : Basic Materials/Resources | i13 : Crude Oil/Natural Gas Upstream Operations | i1300003 : Crude Petroleum Extraction | iextra : Natural Gas/Oil Extraction

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