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Illustration by **BURKHARD NEIE**

Australia: Energy Policy on Divergent Paths

Australia is blessed with abundant natural resources, with the potential to become a “global energy superpower.” But a national conflict pits the government’s economically motivated desire to further development of the hydrocarbon export sector against the population’s concern over global warming.

By Peter Christoff

At the beginning of the 21st century, Australian energy policy seems increasingly to be trying to move along divergent paths. The first path involves unwavering political support and public and private sector investment to meet growing export markets for Australian coal, gas, and uranium. Australia currently exports more than three-quarters of its energy output, and coal and petroleum exports account for 20 percent of its total export income. Australia’s two major political parties – Labor, in national government since 2007, and its predecessor, the Coalition – have supported boosting the hydrocarbonization of the Australian economy. Both Australia’s former Coalition (conservative) Prime Minister, John Howard, and Martin Ferguson, current Labor Minister for Resources, Energy and Tourism, have described Australia as an emerging global energy superpower.

The second trajectory is shaped by growing public demand for a stronger national response to the challenges of global warming, including a carbon price on domestic use of fossil fuels, increased support for renewable energy, and a nascent debate about limiting export-oriented hydrocarbon

development. In the 2010 national election, climate change emerged as a government-determining issue, as seen in the emergence of the Greens as a third force in national politics that advocates reducing national emissions.

The Lucky Country

Donald Horne once wryly observed that Australia is “the lucky country,” not merely because of its abundant natural wealth, but also because successive generations of political and economic mismanagement have failed to manifest in disaster. Australia has supplied an abundance of resources for global markets, from the gold rushes of the 1850s, through successive mineral booms during the 1970s and 1980s, to Asia’s recent economic growth. Because of its mineral wealth, Australia was relatively untouched by the energy price shocks of the 1970s, and buoyant Chinese resource demand has provided economic stability for Australia during the recent global financial crisis.

Australia’s resources are shared between its national and state governments. However, the national government only has direct responsi-

Facts & Figures

Although Australia has only 22 million inhabitants, it is the world's 20th-largest energy consumer and ranks 16th on a per-capita basis. Its energy consumption is estimated to grow by nearly 35 percent by 2030, with electricity generation increasing by around 50 percent.

The country has abundant fossil fuel resources, including black and brown coal, and the 12th-largest known reserves of natural gas (30 trillion cubic feet in January 2009, of which some 70 percent are located in reserves off the western Australian coast). It also has about one-third of the world's known reserves of uranium. Although it has some 1.5 billion barrels of proven oil resources, and exports both crude oil and oil products, Australia has been a net importer of crude oil since the 1980s. Its oil production peaked in 2000, despite continuing exploration and drilling.

The vast majority of Australia's domestic energy (95 percent) is derived from nonrenewable sources. Black and brown coal accounts for more than half (54 percent) of primary energy generation and provides some 85 percent of the fuel used to generate electricity in Australia. The remaining fuel used to generate electricity is mainly gas, for which demand is increasing. The production of coal seam methane is now also increasing rapidly and has risen from a 2 percent share of national gas production in 2002 to approximately 7 percent in 2008. Although Australia ranks 12th by capacity for renewable generation, with 3.3 GW installed, in 2008, renewable energy still only accounted for about 5 percent of the total energy generated. Renewable energy generation is heavily dominated by bagasse, wood and hydroelectricity. Nearly three-quarters of renewable energy generation in 2008 (72 percent) came from biomass (bagasse and wood), 15 percent from hydroelectricity, and 7 percent from wind and solar. Hydroelectricity generation has been restricted by drought conditions in many areas. Australia's generation of renewable energy increased by 41 percent between 1975–76 and 2007–08, from 206 petajoules (PJ) of energy to 290 PJ. A number of large-scale wind power projects have been completed in recent years, with

more planned or under construction. Electricity generation from solar photovoltaic cells is growing quickly, but from a very low base, and has been encouraged by government subsidies for installation and the payment of feed-in tariffs. The current Australian government has introduced a mandatory Renewable Energy Target to introduce 9,500 GWh of new renewable generation annually (based on 1997 levels) by 2010 and continuing through to 2020. This target is intended to cause renewable energy generation to rise to approximately 20 percent of Australia's total stationary power generation by 2020. Australia exports more than three-quarters of its energy output. It is the world's largest exporter of metallurgical coal and second-largest exporter of thermal coal by volume. It was the world's fourth-largest exporter of liquefied natural gas (LNG) in 2009, with the export of LNG having risen by 48 percent over the past decade. Earnings from coal and petroleum exports comprise 20 percent of its total export income. In 2007–08, the coal mining industry (for domestic and export markets) accounted for some 31,000 jobs directly, with another 10,000 jobs in the oil and gas extraction sector. Many of these jobs were regionally concentrated. Given its strong domestic reliance on fossil fuels and high levels of energy consumption, it is unsurprising that Australia is the world's tenth-largest emitter of greenhouse gases as a nation, with its per-capita emissions the largest in the OECD and among the largest in the world. In 2006, its per-capita emissions (including emissions from land use, land-use change and forestry) were 28.1 tonnes carbon dioxide equivalent (CO₂-e) – nearly twice the OECD average and more than four times the world average. In 2008, Australia's net domestic greenhouse gas emissions were 565 Mt CO₂-e. In 2009, Australia's net domestic energy-related greenhouse gas emissions were 417 Mt CO₂-e, which represented about 70 percent of Australia's total. Its stationary energy-related emissions grew by some 50 percent in the period 1990–2008.

bility for offshore exploration and production. This division of responsibilities has encouraged state governments to favor energy resource development by private companies – some Australian (such as Woodside), but the majority international (including Exxon, Shell, Chevron and BHP Billiton). These governments have benefited from regional employment growth and have derived considerable revenue from modest resource taxes. The uneven continental distribution of coal and gas reserves has meant that Western Australia, Queensland, and New South Wales in particular now dominate the export-oriented energy sector. Until recently, the political consensus on energy resource development and the constitutional delicacies of federal politics have deterred national governments from involvement in state energy politics, or developing strong overarching energy policy or strong national resource rent taxes. There have been some notable exceptions to this trend. The first is the cooperative development (by national and state governments) of the Snowy Mountains hydroelectricity scheme, a nation-building infrastructure project that took some 25 years to complete. The second and third are examples of resource conflict and constraint in response to public opinion about environmental issues. In 1983, Labor used its “external affairs” powers to block the Tasmanian state government from damming the iconic Franklin River for hydropower. Shortly afterwards, it used its trade powers to limit uranium mining to three mines only (this policy was only rescinded in 1996). Finally, the Rudd Labor government in 2008 attempted to introduce a carbon emissions trading scheme that promised to transform domestic energy markets and production, but its introduction foundered politically in 2009.

A Carbon Crunch?

Australia's population and domestic energy demand are both predicted to grow substantially in the coming years. In response, primary energy consumption is estimated to increase by 35 percent, and electricity demand by 50 percent, by 2030. How will these requirements be met? In 2004, the Coalition released its white paper *Securing Our Energy Future*, which defined its vision of Australia's 21st-century economy still solidly built around hydrocarbons. Separately, the Coalition initiated a public debate over

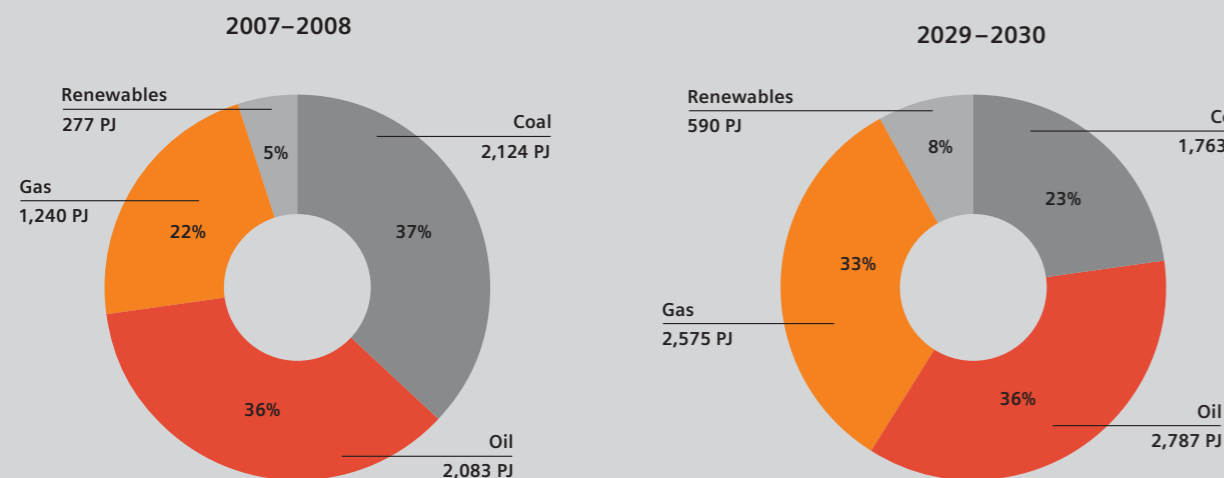
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nuclear power – which broadly indicated that, while public opposition to uranium exports had declined, concern about the safety and economic viability of nuclear power remained sufficiently strong to make the establishment of a domestic nuclear energy sector infeasible for the foreseeable future.

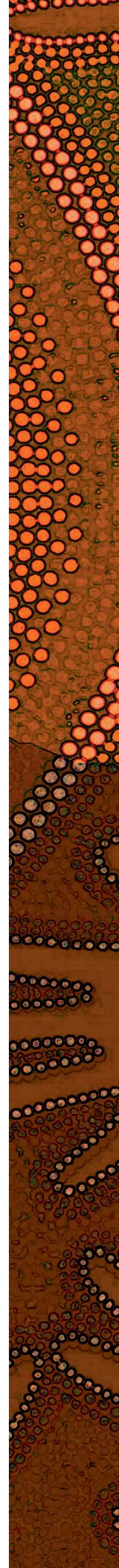
In its 2007 election campaign, Labor differentiated itself from the Coalition through its climate and energy policies – including immediate ratification of the Kyoto Protocol, putting a price on carbon, and initiating strong action to promote renewable energy. In 2009, it legislated a national renewable energy target of 20 percent by 2020 and proclaimed a weak national greenhouse emissions reduction target of minus 5 percent from a 2000 baseline. Its capstone policy for decarbonizing the domestic economy was to be an emissions trading scheme. But progress toward these goals has been exceedingly modest.

While Labor's support for renewable energy has been significantly greater than under the Coalition, it lacks depth or consistency. For instance, while most states have adopted solar feed-in tariffs to boost uptake, there is no uniform or substantial national approach. A national solar rebate scheme foundered in 2008 when demand rapidly outstripped the program's budgetary allocation and it then was wound back prematurely. Funding for the national Solar Flagship program has been cut since 2009. As a consequence, private investment in renewable energy lags behind the rest of the world, and government assessments still reflect the expectation that coal will “continue to dominate

Australia's Primary Energy Consumption, by Fuel (Petajoules)



Source: ABARE research report 10.02, March 2010





Australia's electricity generation" – a view supported by continuing disproportionate government funding support for research and development into carbon capture and storage (CCS). By contrast, Labor's energy trade policy remains indistinguishable from that of its political predecessor. Booming energy demand among Australia's major Asian trading partners – China, India, and Japan – suggests unlimited opportunities for expansion of liquefied natural gas (LNG) and coal exports, and this has been reflected both in policy and associated investment patterns. As a result, the value of Australian energy exploration and project development expenditure is at an historic high, accounting for some 73 percent (A\$80 billion) of committed capital expenditure in the mining sector. Natural gas production continues to rise, with significant new export-oriented projects coming on-stream in the short to medium term, including the Gorgon project (involving Chevron, Shell and ExxonMobil) being developed off the north-west Australian coast. Substantial new investments have been made in export-oriented black coal projects in Queensland (the expanding market and rising price of uranium has also caused a significant recent investment in that sector). The institutional and political strength of the hydrocarbon sector – both domestic and export oriented – remains a capstone of government energy policy at all levels.

Labor's failed Carbon Pollution Reduction Scheme (CPRS) was in part a victim of the tensions between its domestic and export-oriented energy strategies. By the time the CPRS was finalized late in 2008, its design was deeply compromised by attempts to accommodate the interests of the energy and minerals sector. Half its revenue and free carbon permits were to be directed to protect growth in energy-intensive trade-exposed and export-oriented industries (including the coal and processed minerals and metals industries) and the domestic coal-fired power sector. The remaining revenue was to be dispersed as compensation to low- and middle-income households. These features left the scheme vulnerable to a withering attack by the opposition as a "money-go-round" and "tax without purpose." Public opinion indicated confusion about what the scheme intended to achieve. Dwindling public support in 2009 led to the scheme's failure in parliament, its withdrawal by Labor in early 2010, and then the replacement of Labor leader Rudd – a victim of his own collapsing credibility. The failed balancing act between protecting the

export hydrocarbon sector and introducing a domestic price on carbon contributed to a climate policy vacuum that almost cost Labor government when it returned to the polls in October this year. As a result, a national emissions trading scheme now seems politically infeasible for several years and a national carbon levy or tax more likely – although the level of such a price and its influence on Australian energy markets and industry are unclear. Australian governments (state and national) are now confronted with a hard policy choice between accelerated exploitation of hydrocarbon resources to meet international market demand – to be followed by a period of rapid and politically difficult structural adjustment – or a carefully calibrated coordination of both the domestic and export energy sectors ahead of international shifts toward decarbonization, necessary for a more graduated response to the challenges of global warming. However, this second option involves a level of restrictive regulatory interference uncommon in Australia for decades. Australian energy policy remains framed by the belief that a global carbon market and associated demand management by importing states will do all that is required to ensure orderly development of Australia's energy sector. Based on this belief, policy makers are still aiming for a two-track approach: On the one hand, they want to continue the unbridled development of Australia's hydrocarbon export sector and strong growth in infrastructure and employment to service these markets. At the same time, they believe the domestic economy can be guided toward orderly decarbonization, assisted by a domestic carbon price. However, it is most likely that these policy paths are not compatible, but divergent and unsustainable. Pursuing both will exacerbate tensions between domestic and international national energy policy and planning, between energy and climate policies, and between Australia's hydrocarbon-export states and "the rest," if public concern about climate change intensifies and if the political clout of the Greens increases. These shifts are likely, particularly if the climate science message calling for early, strong action to cut emissions becomes more insistent, and local effects of climate change – like Australia's recent devastating drought, floods and bushfires – worsen. It is unclear how fast these changes will occur. But it is likely that continuing down the present divergent paths will lead to a carbon policy crunch in the medium term. ■

Sources: ABARE, *Energy in Australia 2010*, ABS, *Measures of Progress*, DCC, *National Greenhouse Gas Inventory 2009*, IEA data