

August 2019



TECHNOLOGICAL NEUTRALITY IN AUSTRALIA'S ENERGY MARKET

Kurt Wallace, Research Fellow

 **Institute of
Public Affairs**

Contents

Introduction	3
Technological neutrality	5
The level of government intervention	6
Diminished affordability and reliability	9
Emission reductions	12
Conclusion	13

Introduction

The *Coal-Fired Funding Prohibition Bill (2017)* proposes to prohibit the Commonwealth government or its agencies from funding the refurbishment, building or purchase, or assisting in the transfer of ownership, of a coal-fired power station. The Institute of Public Affairs (IPA) does not support this Bill as it violates the principle of technological neutrality. The appropriate role of the government in the energy market is to provide the conditions, such as secure property rights, within which different energy generators offering different forms of energy generation can compete in an open and free market. The ultimate composition of energy generation ought not be the role of policy makers, but reflect the underlying preferences of consumers. A position more consistent with technological neutrality would be to prohibit the Commonwealth government or its agencies from funding the refurbishment, building or purchase, or assisting in the transfer of ownership, of all forms of energy generation, including wind, solar, coal-fired, gas-fired, hydro, and nuclear.

Government intervention into the energy market over the past two decades has favoured renewable energy generation at the expense of coal and gas-fired energy generation. Government intervention has included Renewable Energy Targets at both the federal and state level, direct subsidisation of the generation of wind and solar energy, and regulatory restrictions on coal and gas exploration and development, along with a ban on the development of nuclear power in Australia. In total, it is estimated that governments at the state and Commonwealth level spend at least \$5 billion per year in supporting renewable energy generation. This has seen the share of renewable energy production increase from eight percent to 17 percent over the last decade.¹ Coal-fired power has declined to a 60 per cent share, down from its high of 84 per cent in 1997-1998 and only three new coal-fired units have been built since 2006.²

The continued expansion of renewable energy at the expense of coal-fired energy over the last 20 years has seen growth in electricity prices far outpace inflation. While the consumer price index has increased by 70 percent since 1997, electricity prices have increased 221 percent.³

1 Department of the Environment and Energy, 'Australian Energy Statistics, Table O Electricity generation by fuel type 2017-18 and 2018', accessed 23 July, 2019, <https://www.energy.gov.au/publications/australian-energy-statistics-table-o-electricity-generation-fuel-type-2017-18-and-2018>

2 Endcoal, 'Global Coal Plant Tracker', accessed July 26, 2019, <https://endcoal.org/global-coal-plant-tracker/>.

3 Australian Bureau of Statistics, 'Consumer Price Index, Australia Jun 2019'.

One of the major consequences of high and rising electricity prices and declining supply reliability is low and declining rates of business investment. Private investment is now only 11.4 per cent of GDP, lower than it was in the Whitlam government from 1972-1975, and the lowest it has been since the recession of the early 1990s.⁴ Low investment has reduced productivity growth and contributed to stagnating real wages.

The government's management of energy production, in addition to reducing affordability and reliability, has also undermined the transition to cleaner forms of coal-fired power. While many countries around the world are building new low emission coal-fired power stations, investment in new coal-fired power units in Australia has come almost to a standstill. Regulatory uncertainty and the negative effects of renewable energy on the stability of the electricity grid have created a hostile environment for investing in coal-fired power.

The government has assumed a bureaucratic management approach to energy that is far removed from a free market. The government should prioritise the needs of Australian individuals and businesses by allowing the market to select the technological methods best suited to providing affordable and reliable power.

The IPA recommends:

- The Bill either be withdrawn, or the prohibition on funding the refurbishment, building or purchase, or assisting in the transfer of ownership be extended to all forms of energy generation.
- The government adopt a policy of technological neutrality.
- The government withdraw from the Paris Climate Agreement.
- The government remove the ban on the development of nuclear energy generation in Australia.
- The government reduce regulation and red tape on the coal and gas industries, including the repeal of Section 487 of the *Environment Protection and Biodiversity and Conservation Act 1999*.
- The government should not extend the RET beyond 2020, and should remove all existing contracts for solar and wind energy generators which have been made under the RET.
- State governments should reduce regulatory restrictions on the development and exploration of gas.

⁴ Australian Bureau of Statistics, 'Australian National Accounts: National Income, Expenditure and Product, Mar 2019.'

Technological neutrality

Governments at the state and Commonwealth level should adopt a policy of technological neutrality. In practice this would mean removing all existing support for renewable energy generation, and removing impediments to the development of coal and gas-fired energy generation and removing the ban on the development of nuclear energy generation in Australia. The ultimate energy generation mix which prevails on the market ought to reflect underlying consumer preferences (households, consumers, small businesses, and large industrial operations) and underlying market conditions as they relate to factors such as technological feasibility and cost.

It is not possible for policy-makers to be able to forecast with any degree of reliability what forms of energy generation are 'superior' to others. Markets are dynamic and are constantly evolving and changing. Over the past decade, for example, new, cleaner, and more efficient forms of coal-fired power have emerged on the market (so-called high-efficiency, low-emissions). However, current public policy settings have inhibited the ability of this new technology to achieve the market-share it otherwise would have. At the same time, government policy has actively encouraged more expensive, less reliable, and inferior forms of energy generation onto the market from wind and solar energy generators.

In opposition to technological neutrality, the Commonwealth government has committed to the deepest carbon emission cuts in the developed world on a per capita basis.⁵ The commitment to halve per capita emissions by 2030 on 2005 levels, undermines the ability of the market to deliver affordable and reliable electricity. Government intervention that favours particular technological methods of energy production over others, will distort the market away from meeting the needs of households and businesses. The benefit to the commitment is also severely limited by the fact that Australia accounts for just 1.3 per cent of global emissions from human activity, and the four largest emitters (China, India, the USA, and the European Union) are either not constrained by the Paris Climate Agreement or are not on track to meet their targets.⁶

⁵ Daniel Wild, 'Ten Points about the Paris Climate Agreement,' Institute of Public Affairs, Melbourne, Australia, (2018)

⁶ Ibid

The level of government intervention

The market for energy in Australia is highly hampered by government intervention. Government subsidies and spending promoting renewable energy costs nearly \$5 billion a year.⁷ This includes the subsidisation of renewables under the Renewable Energy Target, and funding for agencies that intervene in the market to promote renewable energy. Coal and gas-fired power are further undermined by heavy regulation and the development of nuclear energy generation is banned.

The Renewable Energy Target allows renewable power stations and owners of small renewable energy systems to create certificates based on energy production that are then purchased by electricity wholesale retailers who are required to surrender a specified amount of certificates to the Clean Energy Regulator.⁸ The current mandate under the RET is 33,000 GWh of electricity from renewable sources by 2020.⁹ The description of the scheme as “market based” by the government is confused at best.¹⁰ The government creation of certificates that are then bought by entities acting under government compulsion is far removed from a free market process.

The Australian Renewable Energy Agency, charged with administering financial assistance to “support improvements in the competitiveness of renewable energy”, has an expense budget of \$284 million in 2019-2020. The government green bank, the Clean Energy Finance Corporation’s expense budget is \$110 million. And the Clean Energy Regulator will spend \$331 million administering the RET certificates this year. In addition, as part of its support for renewables, the government has committed an estimated \$5.1 billion to the Snowy Mountains Hydro Electricity Scheme.¹¹ The case for the scheme depends on continued declines in the energy share of coal and gas-fired power that deliver on-demand power.

7 Alan Moran, ‘A Simple Rx for the Energy Mess’, accessed 26 July, 2019, <https://quadrant.org.au/opinion/doomed-planet/2018/08/simple-rx-energy-mess/>.

8 Clean Energy Regulator, ‘Small-scale Renewable Energy Scheme’, accessed 26 July, 2019, <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/How-the-scheme-works/Small-scale-Renewable-Energy-Scheme>.

9 Department of Environment and Energy, ‘The Renewable Energy Target (RET) scheme’, accessed 6 August, 2019, <https://www.environment.gov.au/climate-change/government/renewable-energy-target-scheme>.

10 Clean Energy Regulator, ‘Small-scale technology certificate market update – May 2018’, accessed 26 July, 2019, <http://www.cleanenergyregulator.gov.au/RET/Pages/About%20the%20Renewable%20Energy%20Target/How%20the%20scheme%20works/Small-scale%20technology%20certificate%20market%20updates%20by%20month/Small-scale-technology-certificate-market-update---May-2018.aspx>.

11 Stephen Letts, ‘Snowy 2.0 cost blows out to \$5.1b’, Australian Broadcasting Corporation, accessed 26 July, 2019, <https://www.abc.net.au/news/2019-04-09/snowy-hydro-2.0-cost-and-timeline-blows-out/10983998>.

Aside from direct subsidisation and favouritism of renewable energy generation, governments at the state and Commonwealth level also actively discourage the development of coal and gas. The resources sector faces a range of regulation which deters investment. Section 487 of the *Environmental Protection and Biodiversity Conservation Act (EPBC)*, for example, allows environmental groups to engage in 'lawfare' that delays and disrupts projects and discourages investment. From the introduction of the EPBC Act in 2000 up until 2016, section 487 resulted in significant delays in major projects that spent a cumulative 7,500 days (20 years) in court. Of the 32 challenges, 28 were ultimately rejected in court, and only one resulted in significant changes to the original approval.¹²

While many of these challenges were against mining projects, the disruptive tactics of environmental groups stifle investment in other sectors of the economy. In response to a proposal to build a 2,000 megawatt coal-fired power station in the Hunter Valley, Greens MP Adam Bandt threatened the investor by declaring, "We will raise up a massive movement to ensure that these power-stations never happen."¹³ This threat is backed up by government policy that extends the right to challenge approvals to environmental activist groups that do not have a personal or proprietary interest in the decision.

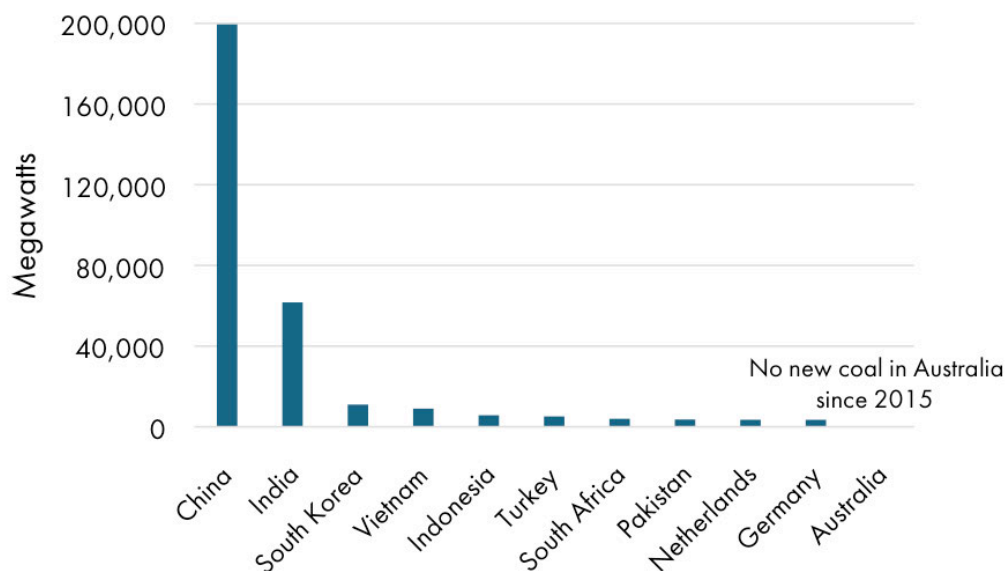
Regulatory uncertainty substantially increases the risk of investment in coal-fired power. Over the past twenty years Australia has introduced a Renewable Energy Target that has undergone significant expansion, an emissions trading scheme has at various times been favoured by both the major parties, a carbon tax has been introduced and then repealed, the government has committed to the highest per capita emissions cuts in the developed world under the Paris Climate Agreement, and the Coalition's proposed National Energy Guarantee policy was scrapped and then supported by the Labor Party with increased renewable targets.

¹² Daniel Wild, 'Section 487 of the Environmental Protection and Biodiversity Conservation Act', Institute of Public Affairs, Melbourne, Australia, (October 2016)

¹³ Adam Bandt, 'Greens Vow to Fight Tooth and Nail to Stop Coal-fired Power in Hunter Region', accessed 2 August, 2019, https://www.adambandt.com/0603_toothnailcoal.

Government subsidisation of renewable energy, red tape and restrictions on coal-fired power, and policy uncertainty, has dried up investment in new and efficient coal-fired power. In the last five years, there have been no new coal-fired units built in Australia. At the same time, Asia and European countries, including the Netherlands and Germany, have continued to build cleaner and more efficient coal-fired power stations.

Graph 1: Capacity of New Coal-Fired Units Since 2015 (megawatts)



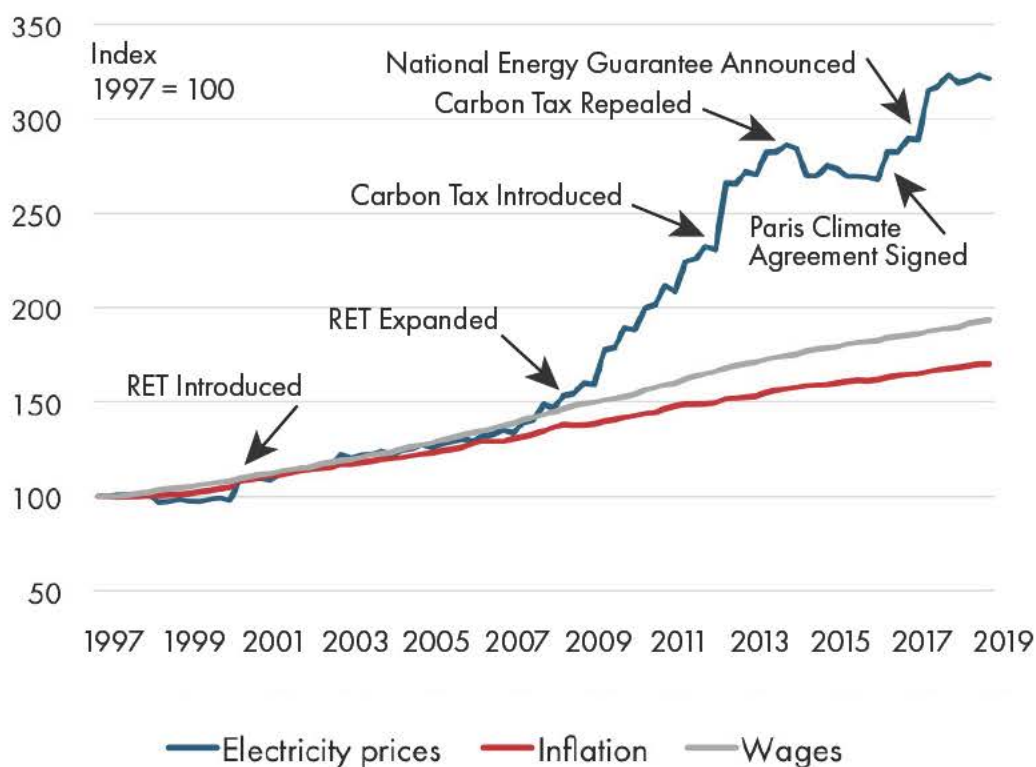
Source: Global Coal Plant Tracker

Diminished affordability and reliability

Government management of the energy market has contributed to significant increases in electricity prices above inflation. Electricity prices have tripled over the last twenty years, with sharp increases following increased government intervention in the market. The ME Bank's *Household Financial Comfort Report* found that the leading driver of high levels of anxiety for households was the cost of necessities, including the cost of utilities.¹⁴ 46 per cent of households nominated the cost of necessities as their biggest financial worry. Electricity price growth is a significant driver of increases in the cost of necessities.¹⁵

Every major instance of government intervention into the energy market has coincided with increases to electricity prices, including the introduction of the RET in 2000, the expansion of the RET in 2009, the introduction of the carbon tax in 2012, the signing of the Paris Climate Agreement in 2015, and the announcement of the National Energy Guarantee in 2017. The only occasion in which there was a sharp drop to electricity prices was following the repeal of the carbon tax in July 2014.

Graph 2: Australia's Household Electricity Prices



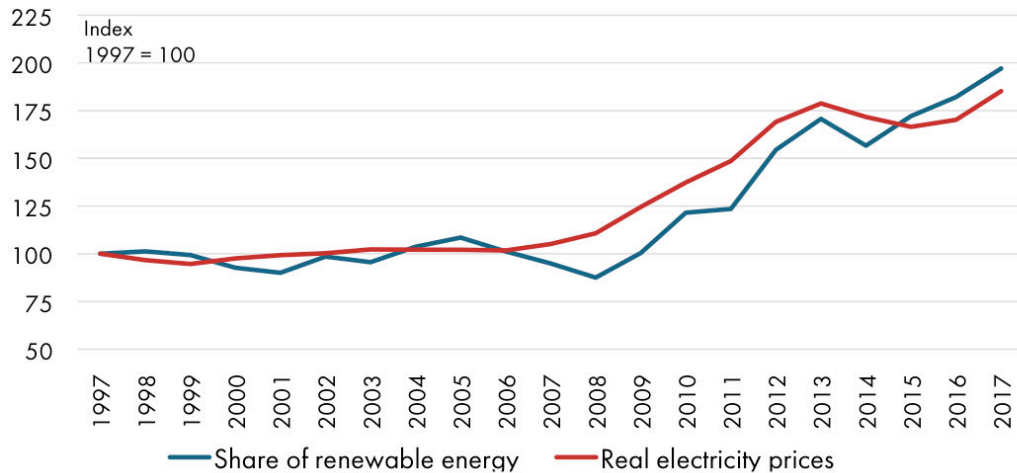
Source: IPA, ABS

¹⁴ ME Bank, 'Household financial comfort report', accessed 2 August, 2019, https://www.mebank.com.au/getmedia/899ccb18-7fe5-4868-b51b-b64ad2b467cf/216317_HFCR-Jan-2019_V11-WEB.pdf.

¹⁵ Australian Bureau of Statistics, 'Consumer Price Index, Australia Jun 2019'.

The expansion of the renewable energy share of electricity production is also strongly correlated with increases in real electricity prices over the same period. The graph below illustrates the growth in the share of electricity generation from renewable sources against the growth of real electricity prices indexed to 1997. Between 1997 and 2017, real electricity prices have increased by 85 per cent, while the share of renewables has increased by 97 per cent, up from a nine per cent share in 1997 to a 17 per cent share in 2017.¹⁶

Graph 3: Australia's Household Electricity Prices



Source: Department of Environment and Energy, ABS

Continued government subsidisation of high-cost electricity production, combined with restrictions on coal and gas-fired power, has artificially increased the price of electricity and undermined the stability of the grid. Existing gas and coal-fired power stations are forced to respond to fluctuations in electricity production coming from weather dependent sources. This means that coal-fired plants are required to reduce capacity when weather conditions happen to be favourable to wind and solar energy generators. When the weather is less favourable to wind and solar, coal-fired power stations are required to enter the market to fill the energy shortfall. This is a particular strain on coal-fired stations that are less suited to rapid changes in operation, and has reduced profitability both by adding significant costs to operation, and by reducing revenue due to government subsidisation of competitors.

¹⁶ Department of Environment and Energy, 'Australian Energy Statistics,' accessed 26 July, 2019, <https://www.energy.gov.au/publications/australian-energy-statistics-table-o-electricity-generation-fuel-type-2017-18-and-2018>.

Large scale coal-fired power plants have closed due to the unfavourable economic reality imposed by government intervention. This has dramatically reduced the capacity of baseload power. Following the close of the Hazelwood coal power station in Victoria in 2017, annual average prices increased by 85 per cent in Victoria. The state which had been the largest exporter of electricity in 2014-2015 and 2015-2016, has since become a net importer of electricity.¹⁷ Further capacity will be removed from Victoria when the Yallourn coal-fired plant is closed. The closure of the EnergyAustralia owned station is currently scheduled to take place in 2032, but this could be brought forward depending on government policy and the effects of renewables on the market.¹⁸

This decline in coal-fired power production is not a result of market competition. With the current technology, Australia still requires gas and coal-fired on demand power to meet energy generation requirements where wind and solar are insufficient. Reduced profitability of coal power through government intervention will reduce the stability of the grid, leading to potential shortfalls in energy production during peak demand periods.

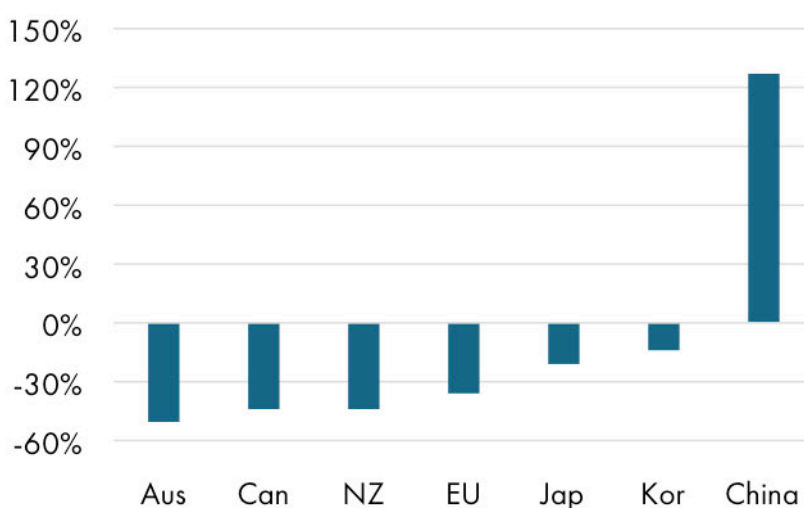
¹⁷ Australian Energy Regulator, 'AER electricity wholesale performance monitoring Hazelwood advice', accessed 2 August, 2019, https://www.aer.gov.au/system/files/AER%20electricity%20wholesale%20performance%20monitoring%20-%20Hazelwood%20advice%20-%20March%202018_0.PDF.

¹⁸ Mark Ludlow and Angela Macdonald-Smith, 'State renewable targets put pressure on coal power.' Australian Financial Review, July 12, 2019.

Emission reductions

Despite the negative effect of government intervention on the affordability and reliability of electricity, it is argued that intervention is necessary to combat climate change by reducing carbon emissions. However, Australia is already committed to the largest per capita cuts to emissions in the developed world under the Paris Climate Agreement while the four largest emitters are unrestrained.¹⁹ China is continuing to increase emissions, the United States has withdrawn from the agreement, none of the European Union nations are on track to meet their targets, and India's target will have no effect on their production.²⁰ The benefit of Australia meeting its target is severely limited given that none of the major global emitters are either meeting their targets or are even constrained under the Paris Climate Agreement.

Graph 4: Per Capita Emission Reduction Obligations under the Paris Agreement



Source: Department of Environment

Government policy that discourages investment in new coal-fired technology is counterproductively preventing the implementation of technological improvements to coal-fired power that would improve efficiency and reduce emissions. Super Critical (SC) and Ultra Super Critical (USC) coal technology dramatically improves the efficiency of coal-fired power for both black and brown coal.²¹ Only 11 per cent of Australia's coal-fired capacity, however, is utilising High efficiency-low emission (HELE) coal. By creating barriers to coal investment, the government is undermining significant efficiency improvements that would reduce the overall emissions of coal-fired power, while maintaining a stable contribution to the electricity grid.

¹⁹ Daniel Wild and Morgan Begg, 'Ten Points about the Paris Climate Agreement', accessed 2 August, 2019, <https://ipa.org.au/wp-content/uploads/2018/10/IPA-PRB-26102018-Ten-Points-About-the-Paris-Climate-Agreement.pdf>.

²⁰ Daniel Wild, 'Ten Points about the Paris Climate Agreement', <https://ipa.org.au/wp-content/uploads/2018/10/IPA-PRB-26102018-Ten-Points-About-the-Paris-Climate-Agreement.pdf>.

²¹ International Energy Agency, 'Technology Roadmap: High-Efficiency, Low-Emissions Coal-Fired Power Generation', accessed 2 August, 2019, https://www.iea.org/publications/freepublications/publication/TechnologyRoadmapHighEfficiencyLowEmissionsCoalFiredPowerGeneration_WEB_Updated_March2013.pdf.

Conclusion

The IPA does not support the proposed *Coal-Fired Power Funding Prohibition Bill 2017* as it is in violation of the principle of technological neutrality. In order to be technologically neutral, the Bill should be withdrawn, or the prohibition on Commonwealth government funding the refurbishment, building or purchase, or assisting in the transfer of ownership of a coal-fired power station be extended to include all forms of energy generation. In short, the Bill is objectionable, not because government should support coal-fired power, but because it further distorts the market away from reliable power production by favouring certain forms of technology at the expense of others.

The past two decades has seen an unprecedented level of government intervention in the energy generation market to support solar and wind energy generation at the expense of coal and gas-fired energy generation. The result has been a tripling of electricity prices and a reduction to energy supply security. The flow-on economic and social consequences includes high and rising household electricity bills, low and declining rates of private sector business investment (which is lower as a percentage of GDP than during the Whitlam era), sluggish rates of productivity and wage growth, and declining international economic competitiveness.

Affordability and reliability need to be prioritised in the energy market. To achieve this, the IPA recommends:

- The government adopt a policy of technological neutrality.
- The government withdraw from the Paris Climate Agreement.
- The government remove the ban on the development of nuclear energy generation in Australia.
- The government reduce regulation and red tape on the coal and gas industries, including the repeal of Section 487 of the *Environment Protection and Biodiversity and Conservation Act 1999*.
- The government should not extend the RET beyond 2020, and remove all existing contracts for solar and wind energy generators which have been made under the RET.
- State governments should reduce regulatory restrictions on the development and exploration of gas.

SUBMISSION ON THE COAL-FIRED FUNDING PROHIBITION BILL 2017

About the Institute of Public Affairs

The Institute of Public Affairs is an independent, non-profit public policy think tank, dedicated to preserving and strengthening the foundations of economic and political freedom.

Since 1943, the IPA has been at the forefront of the political and policy debate, defining the contemporary political landscape.

The IPA is funded by individual memberships and subscriptions, as well as philanthropic and corporate donors.

The IPA supports the free market of ideas, the free flow of capital, a limited and efficient government, evidence-based public policy, the rule of law, and representative democracy. Throughout human history, these ideas have proven themselves to be the most dynamic, liberating and exciting. Our researchers apply these ideas to the public policy questions which matter today.

About the author

Kurt Wallace is a Research Fellow, working in the IPA's Dignity of Work program.

Kurt joined the Institute of Public Affairs as a Research Fellow in 2018.

He is interested in individual liberty, the expansion of free markets, the importance of ideas and culture, and studying the ill effects of government intervention in the economy. His work at the IPA focuses on industrial relations, the dignity of work, and red tape.

Kurt received a Bachelor of Commerce (Honours) from Monash University, majoring in Economics and Finance.

