



Greenhouse Strategies

What do Australians prefer?

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Summary

The Federal Government's greenhouse policy is mainly based on nuclear energy and clean coal technology. The policy includes some measures to promote alternatives like energy efficiency and renewable energy. However, these alternatives are viewed as secondary. The emphasis in the Government's policy statements has been on clean coal technology and nuclear energy.

To gauge the level of public support for the Government's greenhouse strategy, the Australia Institute commissioned Pollinate to conduct an online survey. Respondents were asked whether they would prefer a strategy based mainly on nuclear power and clean coal technology or a strategy based mainly on energy efficiency and renewable energy. They were also asked to select their preferred source of electricity from a list of renewable and non-renewable options.

A large majority of Australians (74 per cent) would prefer a greenhouse strategy based mainly on energy efficiency and renewable energy. Only 19 per cent of Australians prefer the Government's approach that focuses mainly on nuclear power and clean coal technologies.

Even amongst Coalition voters, the number of people who prefer a strategy based mainly on energy efficiency and renewable energy (60 per cent) outweighs those who prefer the nuclear power/clean coal approach (35 per cent) by almost two to one.

The desire for an alternative approach to climate change is also reflected in the data on people's preferred source of electricity. Three quarters (77 per cent) of Australians would prefer to get their electricity from a renewable power source.

Solar and wind attract the most support (50 and 13 per cent respectively), but a substantial number of people prefer other renewable energy sources like hydro, geothermal and biomass (14 per cent collectively). In comparison, only a small number of people would prefer to get their electricity from nuclear (eight per cent) or coal (one per cent).

1. Introduction

Nuclear energy and clean coal technology have featured most strongly in the Federal Government's proposed response to climate change. Together these technologies are seen as the preferred method of reducing greenhouse gas emissions from the stationary energy sector, while also providing the energy security that is necessary to ensure continued economic growth.

Clean coal technology is viewed as important because of Australia's abundant coal reserves, its reliance on coal for the generation of most of its electricity and the prominent role the coal industry plays in the Australian economy. The Government also argues that developing countries such as China and India rely on coal for a significant proportion of their electricity. As a result, the development of clean coal technology can help reduce emissions in other countries, as well as in Australia.

Although Australia does not currently have nuclear power, the Government sees it as an essential part of Australia's energy future. This is because nuclear energy can provide base load power and it has relatively low greenhouse gas emissions compared to fossil fuel-based generation. Further involvement in the nuclear industry is also seen as complementing Australia's role as one of the world's largest uranium exporters.

The Government's position was articulated in a speech by the Prime Minister in April 2007, where he stated:

[w]e need to embrace clean coal technology. The cheapest source of electricity generation in this country is obviously coal, it's very cheap, it's very plentiful, it's very available but it's also very dirty in its combustion. And if you are to reduce the greenhouse gas emissions you must progressively find an alternative to what you can loosely call the current use of coal. And that inevitably brings you into clean coal technology, and as you do that, you must accept that the cost of generating electricity is going to go up because using clean coal is dearer than using existing coal. And as you use the dearer coal something else becomes more economic, and something that's even cleaner than clean coal, and that, of course, is nuclear power. And the advice I have, not from a pollster, or from anybody in the business community, but by somebody no less than the Chief Scientist of Australia, is that there are only two sources of power generation that can sustain the power plants that we need, the base load power plants that we need in this country, and that is fossil fuel or nuclear power. And inevitably part of the solution ... must be to admit of the use in years to come of nuclear power in this country (Howard 2007a).

The importance the Government places on clean coal technology is reflected in existing policies, which preference clean coal over alternative solutions. For example, one of the centrepieces of the Government's greenhouse policy is the \$500 million Low-Emission Technology Demonstration Fund (LETDF). To date, six projects have received a combined total of \$410 million under the LETDF. Four of these projects

involve clean coal technology and they account for almost 70 per cent of the allocated funding.¹

The Federal Government's research programs are also weighted heavily in favour of clean coal technologies. For example, there are currently four Cooperative Research Centres (CRCs) that undertake research and development related to clean coal technology: CRC for Greenhouse Gas Technologies, CRC for Coal in Sustainable Development, CRC for Mining and the CRC for Sustainable Resource Processing (DEST 2006a).² Combined, the clean coal-related CRCs will receive \$88 million over their current seven year funding periods (DEST 2006a).³ In contrast, there are no CRCs investigating renewable energy.

The Government's international greenhouse diplomacy provides further evidence of the prominence given to clean coal technology, particularly the *US-Australia Climate Action Partnership* and *Asia-Pacific Partnership on Clean Development and Climate* (AP6). One of the projects being undertaken as part of the *US-Australia Climate Action Partnership* involves '[a]dvanced cleaner coal technology research, development and demonstration' (Kemp 2002). Similarly, the objects of the Cleaner Fossil Energy Task Force under the AP6 include to 'increase uptake of CO₂ capture and storage opportunities in Partner countries' (Cleaner Fossil Energy Task Force 2006, p. 5)

Nuclear power has not yet received the levels of financial support provided to clean coal technologies. However, the Prime Minister sees nuclear power as inevitable and has made a 'firm commitment to Australia's participation in the Generation IV advanced nuclear reactor research programme' (Howard 2007b). He has also ordered the preparation of four nuclear work plans covering:

- a nuclear energy regulatory regime, including a regime to govern 'any future potential nuclear energy facilities in Australia';
- the development of skills and technical training to fill any identified needs to support a possible expanded nuclear energy industry;
- enhanced research and development; and
- a communication strategy to promote an expanded nuclear industry in Australia (Howard 2007b).

The Prime Minister has indicated that the work plans will be implemented in 2008. He has also flagged the Government's intention to 'repeal Commonwealth legislation prohibiting nuclear activities, including the relevant provisions of the *Environmental Protection and Biodiversity Conservation Act 1999*' (EPBC Act) (Howard 2007b).

¹ The two other LETDF projects are a solar concentrator project in north-west Victoria and a project to capture carbon dioxide from natural gas fields and re-inject it underground.

² The CRC for Clean Power from Lignite closed on 30 June 2006. It received \$14.1 million over the period 1999 to 2006 to investigate ways to reduce greenhouse gas emissions from lignite (for example, coal drying) (DEST 2006a).

³ The CRC for Greenhouse Gas Technologies received supplementary funding of \$6.14 million under the 2006 selection round, which raised the combined funding of the clean coal-related CRCs from \$82 to \$88 million (DEST 2006b).

The relevant provisions in the EPBC Act prohibit the approval of the construction and operation of nuclear power plants.

The Government's statements indicate that it sees the development of nuclear power in Australia as essential for dealing with climate change. This is consistent with Australia's involvement in the AP6. Australia is the only one of the six countries in the AP6 that does not have nuclear energy. A central part of the AP6 is the exchange of information and technology on power generation, suggesting that the Government's intention may be to take advantage of the nuclear expertise available in the other AP6 countries.⁴

Although clean coal technology and nuclear energy are the cornerstones of the Government's greenhouse strategy, there are some policy measures to promote alternatives like energy efficiency and renewable energy. However, these alternatives are viewed as secondary. Over the past decade, the emphasis in the Government's policy statements has been on clean coal technology and nuclear energy.

The Government has recently signalled its intention to introduce an emissions trading scheme. On 3 June 2007, the Prime Minister stated that an emissions trading scheme would be established by no later than 2012 and that it would be 'national in scope and as comprehensive as practicable' (Howard 2007c). According to the Prime Minister, the object of the scheme would be to 'let the market sort out the most efficient means of lowering emissions with all low emissions technologies on the table and that of necessity must include nuclear power' (Howard 2007c).

The introduction of an emissions trading scheme could help promote energy efficiency and the uptake of renewable energy. The extent to which this occurs will depend on the design of the scheme and the complementary policy measures that are used to address climate change. As discussed, existing federal policy measures are weighted heavily in favour of clean coal technology. The Government has also not given a clear indication of the extent to which any future nuclear industry would be underwritten and subsidised by taxpayers. However, the statements by the Prime Minister and other Cabinet members suggest the level of government support provided to the nuclear industry could be considerable. Further, the report of the Prime Ministerial Task Group on Emissions Trading suggests that existing measures that are designed to promote renewable energy like the Mandatory Renewable Energy Target (MRET) would be wound up if an emissions trading scheme is established (PMTGET 2007). The Government has also previously indicated that it will not extend or increase the MRET (AGO 2004). Given these issues, there are good grounds for suspecting that even if an emissions trading scheme is introduced in 2012, the Government's greenhouse policy will continue to rely heavily on nuclear energy and clean coal technology.

⁴ See, for example, Power Generation and Transmission Task Force (2006).

2. Public preferences

To gauge the level of public support for the Government's greenhouse strategy, the Australia Institute commissioned the polling company Pollinate to conduct an online survey. Respondents were asked two questions.

1. There are a number of different strategies that could be used to reduce greenhouse gas emissions in Australia. Which one of the following two strategies would you prefer Australia to adopt?
 - (a) A strategy based mainly on the development of nuclear power and clean coal technology which would reduce greenhouse gas emissions from coal-fired power plants.
 - (b) A strategy based mainly on saving energy through greater use of energy efficient appliances, fuel efficient cars and more energy efficient buildings and the development of renewable energy options like solar and wind power.
 - (c) Neither/don't know.
2. Given the choice, which one energy source would you prefer to get your electricity from: solar, wind, nuclear, hydro, natural gas, geothermal, biofuel, coal, oil or don't know?

There were 1,034 respondents aged 18-64 years. The respondents were selected by means of a random sample process. The representativeness of the sample was ensured by selecting a panel with quotas matching ABS demographic characteristics - capital versus ex-capital city, age and gender. The online survey was carried out between 30 April and 3 May 2007.

3. Preferred greenhouse strategy

The responses to question one are reported in Tables 1 – 5. Table 1 shows the totals, Table 2 provides responses by sex, Table 3 by age, Table 4 by income and Table 5 by voting preference.

As shown in Table 1, the majority of Australians (74 per cent) would prefer a greenhouse strategy based mainly on energy efficiency and renewable energy. Only 19 per cent of Australians prefer the Government’s approach that focuses mainly on nuclear power and clean coal. In other words, Australians prefer by four to one a strategy that focuses mainly on energy efficiency and renewables.

Table 1 Which strategy do you prefer? (per cent)

	Totals
Energy efficiency and renewable energy	74
Development of nuclear power and clean coal	19
Don’t know	7

Women are more likely to prefer the energy efficiency/renewable energy strategy than men – see Table 2. Eighty per cent of women prefer the energy efficiency/renewable energy strategy compared to 68 per cent of men. In contrast, 26 per cent of men prefer the Government’s nuclear power/clean coal strategy compared to only 12 per cent of women.

Table 2 Which strategy do you prefer? By sex (per cent)

	Sex	
	Male	Female
Energy efficiency and renewable energy	68	80
Development of nuclear power and clean coal	26	12
Don’t know	6	8

Younger Australians (aged 18 to 34) are a little less likely to prefer the Government’s strategy than older Australians (aged 35 to 64) – see Table 3. Twenty one per cent of older Australians prefer the nuclear power/clean coal strategy compared to only 15 per cent of younger Australians. However, amongst both younger and older Australians, there is a strong preference for the energy efficiency/renewable energy strategy. Seventy-seven per cent of younger Australians and 72 per cent of older Australians prefer this approach.

Table 3 Which strategy do you prefer? By age (per cent)

	Age group	
	18 – 34	35 – 64
Energy efficiency and renewable energy	77	72
Development of nuclear power and clean coal	15	21
Don’t know	8	7

Note: Totals may not add to 100 due to rounding.

A large majority of people prefer an energy efficiency/renewable energy strategy over the Government’s strategy in all income groups – see Table 4. Among income groups there are no appreciable differences in support for the focus on energy efficiency and renewables.

Table 4 Which strategy do you prefer? By household income (per cent)

	Household income		
	<\$50,000	\$50,000 to \$80,000	>\$80,000
Energy efficiency and renewable energy	75	76	74
Development of nuclear power and clean coal	18	18	22
Don’t know	7	6	4

Note: Totals may not add to 100 due to rounding.

The data on voting preferences follows a predictable pattern – see Table 5. Support for the Government’s strategy is strongest amongst Coalition voters (35 per cent) and weakest amongst Labor voters (14 per cent) and Green voters (seven per cent).⁵

⁵ The sample size for Green voters was only 85, making it difficult to draw firm conclusions on the preferences of Green voters.

Support for the energy efficiency/renewable energy strategy was highest amongst Green voters (91 per cent) and lowest amongst Coalition voters (60 per cent). A large number of ALP (80 per cent) and undecided voters (74 per cent) also prefer the energy efficiency/renewable energy strategy. It is striking that for every Coalition voter that supports the Government’s strategy there are almost two that prefer the alternative strategy.

Table 5 Which strategy do you prefer? By voting preference (per cent)

	Totals			
	Coalition	ALP	Greens	Other/ undecided
Energy efficiency and renewable energy	60	80	91	74
Development of nuclear power and clean coal	35	14	7	15
Don’t know	5	6	2	11

4 Preferred source of electricity

The responses to the second survey question are reported in Tables 6 – 9. Table 6 shows the totals, Table 7 provides responses by sex, Table 8 by age and Table 9 by income. The data on Question 2 by voting preferences are not provided due to the small sample sizes.

Solar is by far the most popular energy source – see Table 6. Fifty per cent of Australians say they would prefer to get their electricity from solar power. After solar, the most popular sources of electricity are wind (13 per cent), nuclear (eight per cent), hydro (seven per cent), natural gas (six per cent), geothermal (five per cent), and biofuels (or biomass) (two per cent). Only one per cent of Australians prefer to get their electricity from coal. Overall, when asked to choose their preferred source of electricity, over three quarters of Australians (77 per cent) favour renewable energy sources.

Table 6 Preferred source of electricity (per cent)

	Totals
Solar	50
Wind	13
Nuclear	8
Hydro	7
Natural gas	6
Geothermal	5
Biofuels	2
Coal	1
Oil	0
Don't know	8

Note: Totals may not add to 100 due to rounding.

A large proportion of both men and women prefer to get their electricity from solar power (44 and 56 per cent for men and women respectively) – see Table 7. A number of differences between the sexes are evident in relation to the remaining electricity sources. Men are more likely to prefer nuclear and hydro power.⁶

Table 7 Preferred source of electricity, by sex (per cent)

	Sex	
	Male	Female
Solar	44	56
Wind	13	14
Nuclear	13	4
Hydro	10	4
Natural gas	4	8
Geothermal	7	3
Biofuels	3	2
Coal	1	0
Oil	0	0
Don't know	6	10

Note: Totals may not add to 100 due to rounding.

⁶ Caution should be taken in drawing definitive conclusions from this data due to small sample sizes.

There are few noticeable differences in preferences for electricity sources between age groups – see Table 8. Slightly more people in the 35 to 64 year age group prefer nuclear energy than those aged 18 to 34 (nine per cent versus six per cent). Younger people are also slightly more likely to prefer wind power than older Australians (15 per cent versus 12 per cent). In addition, older Australians seem more likely to prefer geothermal than younger Australians (seven per cent versus one per cent).⁷

Table 8 Preferred source of electricity, by age (per cent)

	Age	
	18-34	35-64
Solar	50	50
Wind	15	12
Nuclear	6	9
Hydro	8	7
Natural gas	7	5
Geothermal	1	7
Biofuels	3	2
Coal	0	1
Oil	1	0
Don't know	10	7

Note: Totals may not add to 100 due to rounding.

As with age groups, there are few noticeable differences in preferences for electricity sources between income groups – see Table 9. More low and middle income Australians are a little more likely to prefer solar energy than those with high incomes (53 per cent, 53 per cent and 46 per cent respectively).⁸

⁷ Caution should be taken in drawing definitive conclusions from this data due to the small sample size.

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Table 9 Preferred source of electricity, by income (per cent)

	Income		
	<\$50,000	\$50,000 to \$80,000	>\$80,000
Solar	53	53	46
Wind	14	12	13
Nuclear	7	8	10
Hydro	8	7	7
Natural gas	5	4	8
Geothermal	4	5	7
Biofuels	4	2	1
Coal	1	0	1
Oil	0	0	0
Don't know	5	8	7

5. Implications

Fewer than one in five Australians prefer the Government's greenhouse strategy that focuses mainly on clean coal technology and nuclear power. Three quarters of Australians would prefer a strategy that is based mainly on energy efficiency and renewable energy. Even amongst Coalition voters, the number of people who prefer a strategy based mainly on energy efficiency and renewable energy (60 per cent) vastly outweighs those who prefer the nuclear power/clean coal approach (35 per cent).

The desire for an alternative approach to climate change is also reflected in the data on people's preferred source of electricity. When asked to choose a single source, 77 per cent of Australians would prefer to get their electricity from a renewable power source. Solar and wind attract the most support (50 and 13 per cent respectively), but a substantial number of people prefer other renewable energy sources like hydro, geothermal and biomass (14 per cent collectively). In comparison, only a small number of people would prefer to get their electricity from nuclear (eight per cent) or coal (one per cent).

These results provide an insight into the dissatisfaction recorded in other surveys about the Federal Government's greenhouse policy. For example, an AC Nielson poll conducted on behalf of the *Sydney Morning Herald* in November 2006 found that 91 per cent of Australians believe climate change is a problem and 62 per cent say they are unhappy with the Federal Government's response (Coorey 2006). Another AC Nielson poll carried out in September and October 2006 found that 84 per cent of people believe Australia should be taking stronger action to address climate change (Auswind 2006).

Part of the reason for the discontent may relate to the nuclear power/clean coal strategy that the Government has adopted. Irrespective of sex, age, income and voting preference, people would prefer an alternative that places greater emphasis on energy efficiency and renewable energy.

The widespread support for renewable energy and a greenhouse policy that places greater emphasis on energy efficiency and renewable energy also bolsters the case for increasing and extending the MRET (or another similar measure that applies to all low-emission technologies). The current MRET requires an additional 9,500 gigawatt hours (GWh) of renewable electricity to be supplied each year on 1997 levels by 2010. This was originally intended to increase the proportion of renewable energy in the national market from 10.5 to 12.5 per cent. However, the 9,500 GWh target is now expected to increase the proportion of renewable energy by only 0.5 per cent in 2010. If the policy is not changed, the proportion of electricity supplied by renewable energy is expected to fall by around 1.7 per cent by 2020 (Reardon and Mallon 2004). The Government has decided not to increase the MRET target or extend the scheme (AGO 2004).

To promote the uptake of low-emission technology and bring forward 'learning by doing' benefits, there have been calls to increase and extend the MRET (or a similar low-emission technology scheme). Many advocates of this approach believe the MRET should be used to complement an emissions trading scheme, at least in the short to medium-term.⁹ The survey results presented here indicate that such a policy is likely to receive strong support from a large majority of the population.

The Prime Ministerial Task Group on Emissions Trading has argued there is a 'good case for continuing the development' of well-designed measures to promote energy efficiency (PMTGET 2007, p. 135). The Task Group's conclusions on energy efficiency measures are broadly consistent with the position of many other groups and reports, including the Stern Review (2007). The results from the survey suggest that policies to encourage greater energy efficiency are likely to attract widespread community support.

⁹ See, for example, Climate Institute Australia (2007).

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