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Secretary of the Committee
Joint Select Committee on Australia's Clean Energy Future Legislation
PO Box 6021
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RE: Inquiry into Australia's clean energy future

General Electric (GE) welcomes the opportunity to the Joint Select Committee on Australia's Clean Energy Future Legislation's Inquiry into Australia's clean energy future.

GE support for a price on carbon

GE supports a price on carbon and the full suite of complementary measures provided for in the Clean Energy Future legislation and the broader package announced on July 10 this year.

In framing our contribution to the Multi-Party Climate Change Committee (MPCCC), GE commissioned and released a study by Vivid Economics and Norton Rose. The executive summary of the report is available at www.ge.com.au/protectingprosperity. A copy of executive summary is attached as Appendix A and GE's submission to the MPCCC is attached as Appendix B.

The Vivid Economics-Norton Rose study's key findings were that Australia's improvement in carbon productivity - the gross domestic product generated per tonne of CO₂-equivalent emissions - lags the improvement in countries around the world and the emissions intensity of Australia's electricity generation is about 20% more than China's and almost double that of Germany.

The report stated:

"Improvements in carbon productivity allow a country to abate and grow; without this there is more work to do in the future and the eventual imposition of an emissions cap might limit growth.... Australia's carbon productivity in 2007 was just over US\$1300 of GDP per tonne of CO₂ equivalent of greenhouse gas emissions, measured at prices and exchange rates in 2000. This compared to \$4200 in Japan, \$2600 in Japan and \$1500 in South Korea and Canada.... The emissions intensity of Australia's electricity generation was around 880g CO₂ per kWh in 2008, as compared to around 740g CO₂ in China, 540g CO₂ in the US and less than 500g CO₂ in the United Kingdom, Germany and Japan."

The transformation required for more electricity to be generated with fewer emissions will require new investment, a price on carbon and a well-designed mix of complementary measures.

GE's support and advocacy for a carbon price also reflects our own decision to apply one on ourselves as part of our ecomagination™ initiative.

Under the ecomagination™, GE committed in 2005 to invest US\$5 billion in clean technology research and development, earn US\$85 billion in revenue from ecomagination™ products, reduce greenhouse gas emissions (22%) and water use (30%) compared to 2004, and secure US\$130 million in energy efficiency savings over five years until 2010.

Each target was achieved and we have been extended our ambitions to double clean technology R&D investment to US\$10 billion, grow ecomagination™ revenues at twice the rate of overall GE, reduce energy intensity (50%), GHG emissions (25%) and water use (25%) over the five years until 2015.

The targets we set for ourselves through ecomagination™ are providing new opportunities for our customers, our partners, our investors and our employees.

As a result GE is harnessing innovation to help society transform how we create, connect to and use power and water in a carbon-constrained world.

GE is proud of its origins and the world-changing inventions of our founder Thomas Edison, but we have worked with local partners, customers and governments in Australia since 1896 - four years after GE was formally established and five years before Federation in Australia.

From our local experience across our Energy, Capital, Healthcare, Aviation and Transportation businesses, we know some of the finest exponents of innovative and sustainable business are also working here in Australia and they too are prepared for a clean energy future.

However, we also know that businesses in key emission-intensive and trade-exposed industries will require additional assistance just as will required for the development and deployment of those low-emission and renewable energy technologies.

GE acknowledges the Clean Energy Future package includes new assistance measures, expanded programs, the retention of the 20% 2020 Renewable Energy Target (RET), the Clean Energy Future Corporation (CEFC) and a commitment to a national Energy Savings Initiative (ESI).

Retention of the Renewable Energy Target and future reviews

In terms of the legislation now before the Parliament and the Committee, GE urges the Committee to maintain the long-standing bipartisan-support for the retention of the RET along the objects of *Renewable Energy (Electricity) Act 2000* ("the Act").

The RET is the prime driver for additional renewable energy generation in Australia. The January 1, 2011 reforms with the segregation of the RET into large-scale and small-scale targets provides sustainability for the policy post-20% 2020 increase (or enhanced RET) legislated for in 2009.

The retention of the RET and the structure of its future reviews by the proposed Climate Change Authority was the focus of GE's submission on the draft Clean Energy Future Bills last month. GE's submission to the draft Bills is attached as Appendix C.

GE welcomes the Government's acknowledgement, in two instances, in the Explanatory Memorandum for the *Clean Energy (Consequential Amendments) Bill 2011* that:

"Consistent with the Government's policy that the Renewable Energy Target is complementary to the carbon pricing mechanism, the Authority, in undertaking the reviews, must not make recommendations that are inconsistent with the objects of the Renewable Energy (Electricity) Act 2000".

The objects of the Act are:

- (a) to encourage the additional generation of electricity from renewable sources;*
- and*
- (b) to reduce emissions of greenhouse gases in the electricity sector; and*
- (c) to ensure that renewable energy sources are ecologically sustainable."*

GE believes the Parliament should strive to prescribe the clarification provided for in the Explanatory Memorandum in the Bill.

While the formation and investment mandate of the CEFC, the development of the national ESI are not subject to the Clean Energy Future Bills before the Parliament and the focus of the Committee's Inquiry, the Government should continue to pursue these critical elements and seek, where possible, to secure bi-partisan support for them.

As the Vivid Economics-Norton Rose report concluded:

"With efficient policy in the electricity sector, Australia could transform its electricity sector over time, improve its carbon productivity and reap significant benefits. The international analysis of policy efficiency suggests that a broad-based carbon pricing scheme combined with flexible complementary measures is a cost-effective policy environment. Australia already has the beginnings of these in the NSW GGAS scheme and the large-scale renewable energy target, but there is scope for each of these policies to be expanded and to achieve more abatement at a lower cost. The transition to a low carbon economy will be felt more keenly in Australia than in some other places due to its lower carbon productivity. Australia will feel the effects of global action to limit emissions sooner than some other countries, and so it may choose to act sooner to prepare for this transition".

If I can provide additional information or clarification, please contact me on (07) 3001 4339 or kirby.anderson@ge.com.



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Atts.



Protecting prosperity

Lessons from leading
low carbon economies

- AUSTRALIA
- UK
- JAPAN
- CHINA
- GERMANY
- USA

→ Executive summary

Acknowledgements

Vivid Economics and Norton Rose Group would like to thank GE for commissioning this report and for practical support through the review of data and outputs.

In addition, we would like to thank the following people who provided comments and other assistance during the course of the preparation of this work, while acknowledging that this does not mean they necessarily endorse the findings of the report:

Dallas Burtraw, *Resources for the Future*

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Michael Ellis, *Green Order*

Andrew Petersen, *Sustainable Business Australia*

Paul Simshauser, *AGL*

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John Thwaites, *ClimateWorks*

Alex Wohnas, *CSIRO*

Executive Summary

This report provides evidence that a transition to a low carbon economy is already underway in many countries, and that the right combination of policies and technologies may allow this to happen in Australia while continuing to build prosperity.

Innovation and competitiveness are key determinants of economic growth and national prosperity. They will continue to be so in a carbon-constrained world. However, the challenge posed by climate change means that the framework in which we consider national prosperity may have to change. With necessary reductions in global emissions of greenhouse gases, we will have to consider how to maximise prosperity with this constraint. Those countries that can grow their economies successfully at the same time as decarbonising them will be positioned to deliver higher prosperity to their citizens than other countries.

We have analysed countries' performance within this context based upon the current and historical trends of their carbon productivity. A companion report analyses the electricity sector in particular detail and constructs a new measure comparing low-carbon policy efficiency across countries.

A high level of growth of carbon productivity, defined as GDP per tonne of CO₂ equivalent emissions in an economy, delivers future prosperity because it means that every year emissions fall by more than they otherwise would have, thereby saving abatement costs in the future. Improvements in carbon productivity allow a country to abate and grow; without this there is more work to do in the future and the eventual imposition of an emissions cap might limit growth.

A proactive approach to climate change is a focus of China's recently announced 12th Five Year Plan, which has been approved by the National People's Congress, and China has adopted a carbon productivity target as part of this strategy. According to the 12th Five Year Plan, CO₂ emissions per unit of GDP will fall by 17 per cent in the next five years, equivalent to a carbon productivity improvement of 20 per cent.

Australia's carbon productivity in 2007 was just over US\$1,300 of GDP per tonne of CO₂ equivalent of greenhouse gas emissions, measured at prices and exchange rates in 2000. This compared to \$4,200 in Japan, \$2,600 in Germany, and \$1,500 in South Korea and

Canada. Compared to other OECD economies, Australia has relatively low carbon productivity, and this makes it likely that the impact of a global transition to a low-carbon economy will be felt more keenly in Australia than in some other countries. Australia may wish to react to this by preparing for the transition early and seeking to increase carbon productivity.

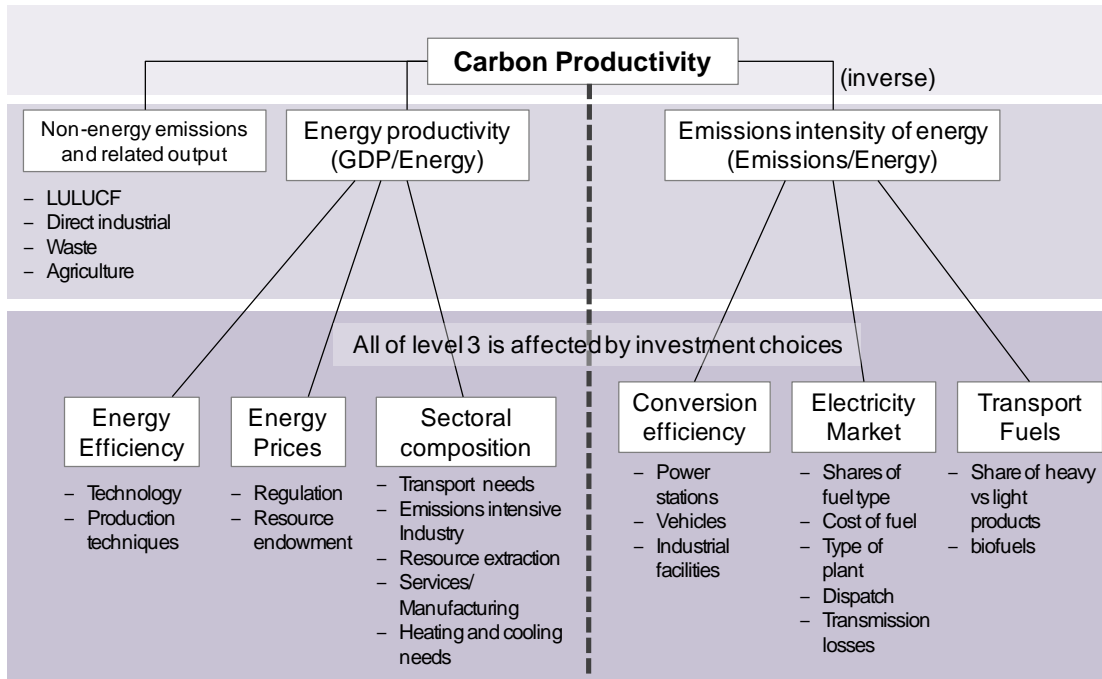
There will need to be significant investment in Australia's power sector. The generation of electricity in Australia produces around 20 per cent more greenhouse gas emissions than doing so in China, and twice as many emissions than in Germany. The emissions intensity of Australia's electricity generation was around 880 gCO₂ per kWh in 2008, as compared to around 740 gCO₂ in China, 540 gCO₂ in the USA and less than 500 gCO₂ in the United Kingdom, Germany and Japan. At the same time, the electricity sector accounts for a larger share of energy use in Australia than in these other countries. This is a key factor behind Australia's weak carbon productivity performance.

Carbon productivity and clean growth

Carbon productivity is the level of GDP produced for each tonne of greenhouse gas emissions produced in the economy. In a future where there is a limit on such emissions, a country will be more prosperous if it can generate more wealth for each unit of emissions it emits. As greenhouse gas emissions become more costly, economies which can generate more wealth with fewer emissions will be more competitive.

Figure A presents a decomposition of all the factors that impact upon economy-wide carbon productivity. Some of these, such as resource endowments, are beyond the control of policymakers; others, such as energy efficiency and electricity generation technology, can be influenced by policy. There are two major factors of carbon productivity: energy productivity, the level of GDP achieved per unit of energy supply, and the emissions intensity of energy, the level of greenhouse gas emissions produced for every unit of energy supplied in the economy. We analyse these factors in greater detail below and in the companion report we consider in greater detail the policy levers (shown in level 3 of figure A) that may be pulled in order to increase Australia's carbon productivity.

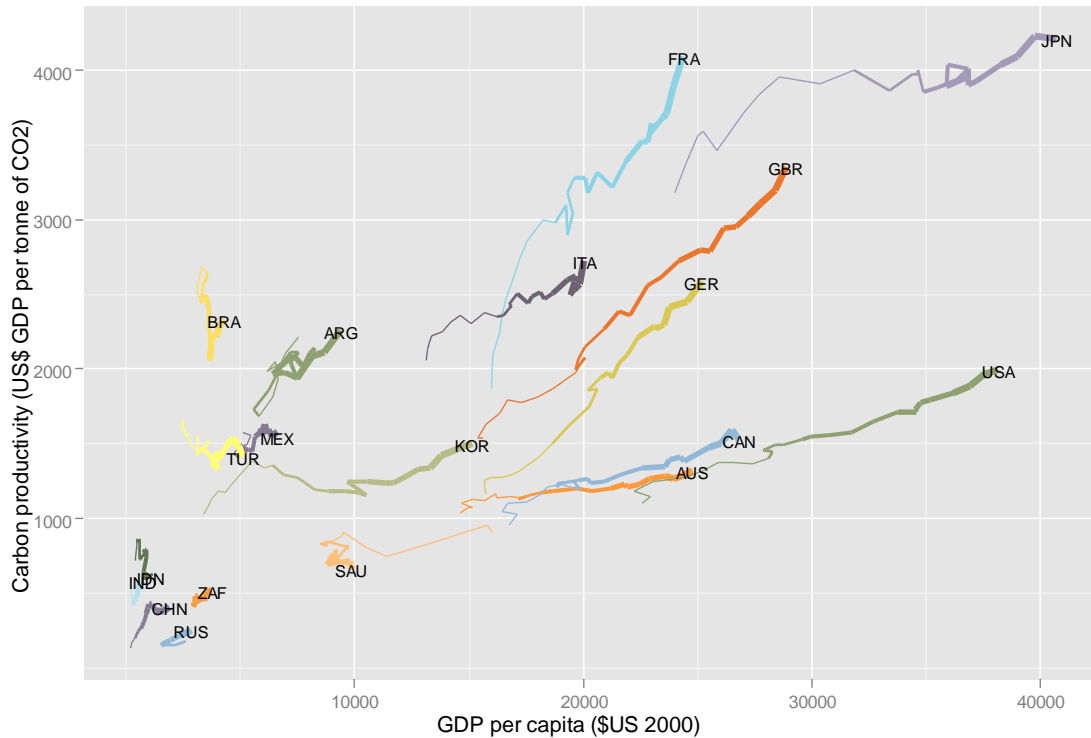
Figure A Decomposition of carbon productivity



Source: Vivid Economics

Many countries, including Australia, already improve their carbon productivity as they grow: this can be seen in figure B. While Japan has always had the highest level of carbon productivity in the G20, European countries have demonstrated the strongest ability to increase carbon productivity while increasing prosperity. China had a high rate of clean growth prior to 2000, but performance from then to 2007 was weaker. Some countries, such as South Korea, have recently exhibited an increase in their rate of green growth, as can be seen by an increase in the slope of the relevant line in figure B.

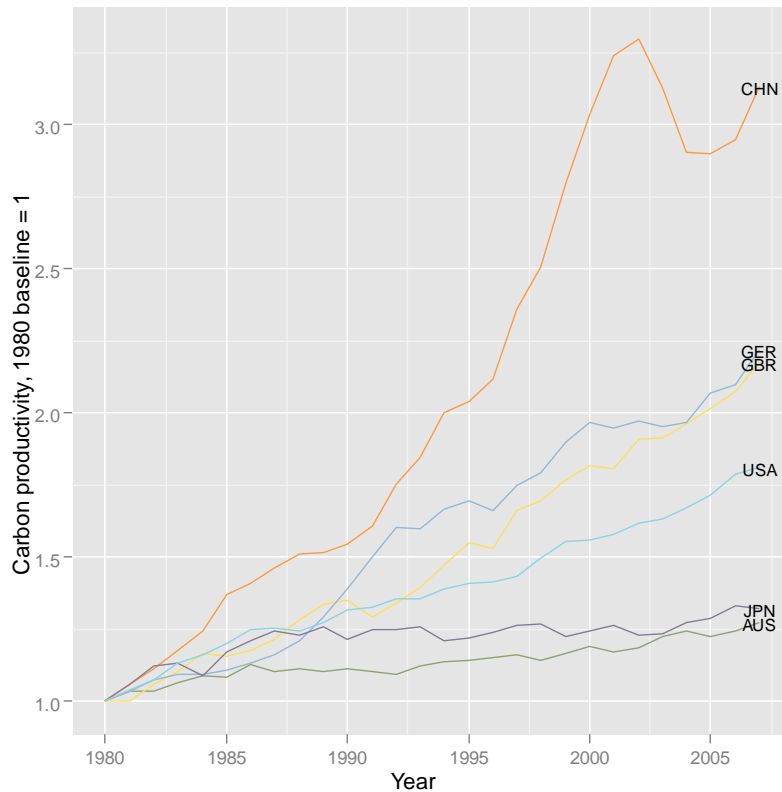
Figure B Some countries have achieved higher rates of clean growth than others



Source: Vivid Economics, data is from 1980-2007 and the line gets thicker over time, Note that we use the international standard ISO codes to refer to countries: ARG Argentina, AUS Australia, BRA Brazil, CAN Canada, CHN China, FRA France, GBR United Kingdom, GER Germany, IDN Indonesia, IND India, ITA Italy, JPN Japan, KOR South Korea, MEX Mexico, RUS Russia, SAU Saudi Arabia, TUR Turkey, USA United States, ZAF South Africa.

The USA, Canada, Germany, Britain and Japan have all increased GDP per capita at the same or at a better rate than Australia over the period analysed, and all have outperformed Australia in terms of increasing carbon productivity. This suggests that good policy may increase carbon productivity while national prosperity increases at the same time. The companion report to this one analyses the efficiency and effectiveness of policy across countries in the energy and electricity sectors, forming recommendations of good policy for Australia to increase carbon productivity and deliver low carbon prosperity.

Figure C Relative carbon productivity improvement has been highest in China and lowest in Australia from 1980 to 2007

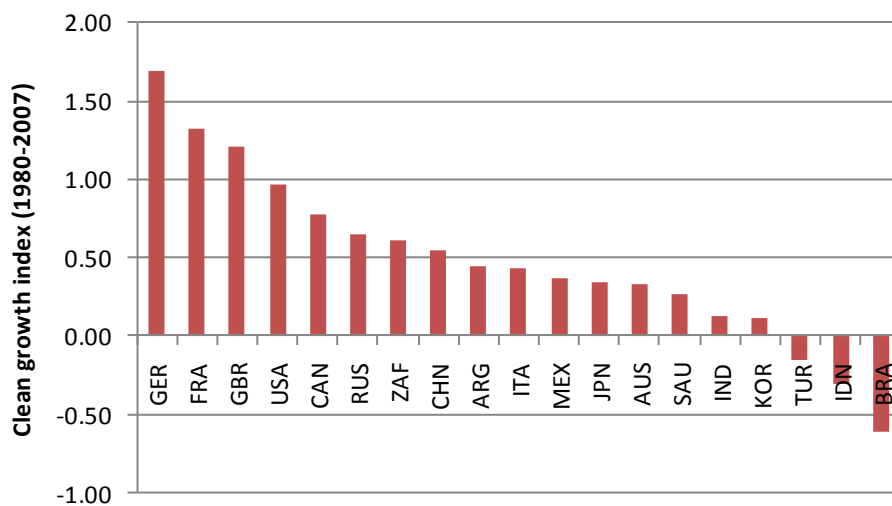


Source: Vivid Economics analysis of IEA and World Bank data

Figure C shows the relative improvements in countries' carbon productivity from a 1980 baseline. This graph shows that China has significantly outperformed others in terms of its rate of improvement, that it went backwards for a time between 2002 and 2004, but that after 2005 it returned to its original strong rate of carbon productivity growth. China's poor performance between 2002 and 2004 may be partially explained by economic priorities at the time. In 2001 China joined the World Trade Organisation, rapidly increasing its trade on the back of inefficient production in the following years. This and China's rapid economic growth catalysed rapid urban construction and migration of rural workers during this period, resulting also in falling carbon productivity. The turnaround in 2005 reflects concerted policy efforts contained in China's 11th Five Year Plan, including the shutting down of small and inefficient plant, implementing a program to set targets for and monitor efficiency in China's 1,000 largest companies, and implementing "ten key projects" promoting efficiency in a range of industrial and economic sectors.

Figure D presents the results of calculations which make up an index we have called the Clean Growth Index. Countries which are ranked higher in this index are more successful in combining economic growth with increasing carbon productivity. European countries lead the index. Australia achieves a positive score, and ranks 13th out of the 19 G20 countries, but is behind comparable economies such as Canada and the USA. China ranks 8th overall across the entire period. Clean growth performance can change over time, suggesting that clean growth prospects are not fixed. Some countries, such as Japan, South Korea, the USA and Brazil have markedly improved their score on the Clean Growth Index over the past decade.

Figure D How clean is your growth? A high score on the Clean Growth Index shows that a country is combining carbon productivity with economic growth



The Clean Growth index is calculated as the percentage increase in carbon productivity for every percentage increase in GDP per capita

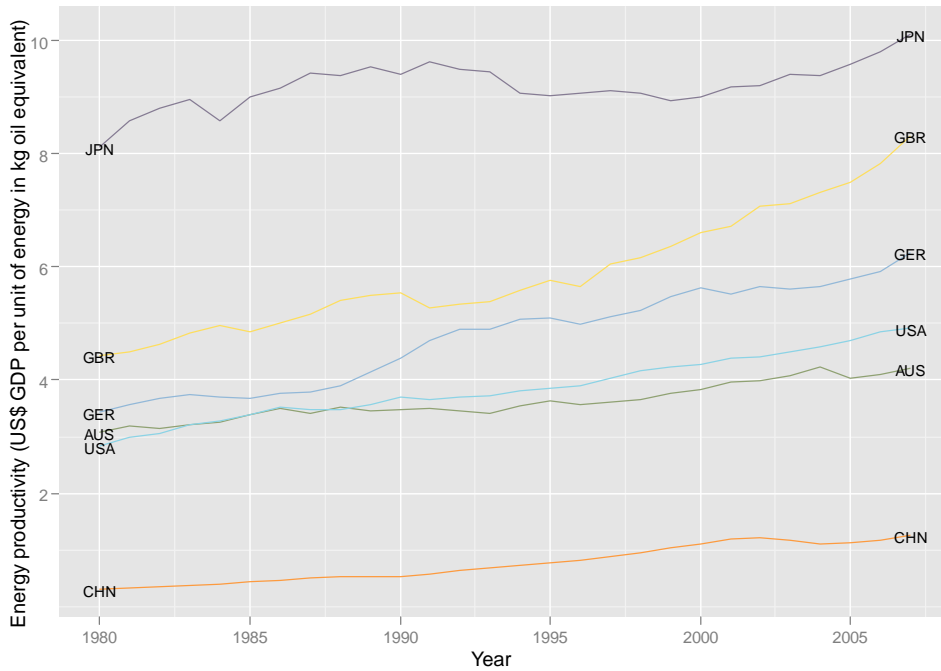
Source: Vivid Economics

Figure A shows that there are two major factors of carbon productivity: energy productivity and the emissions intensity of energy. In this report 'energy' includes electricity generation, transport fuels, direct combustion in industry and all other energy used in the economy. Energy productivity (GDP per unit of energy supply) has been increasing in all six countries shown in figure E. Japan has the highest level of energy productivity, while Germany and the UK have been improving rapidly. Australia is more energy productive than it was in 1980, but its relative position has dropped. Australia had a similar level of energy productivity to

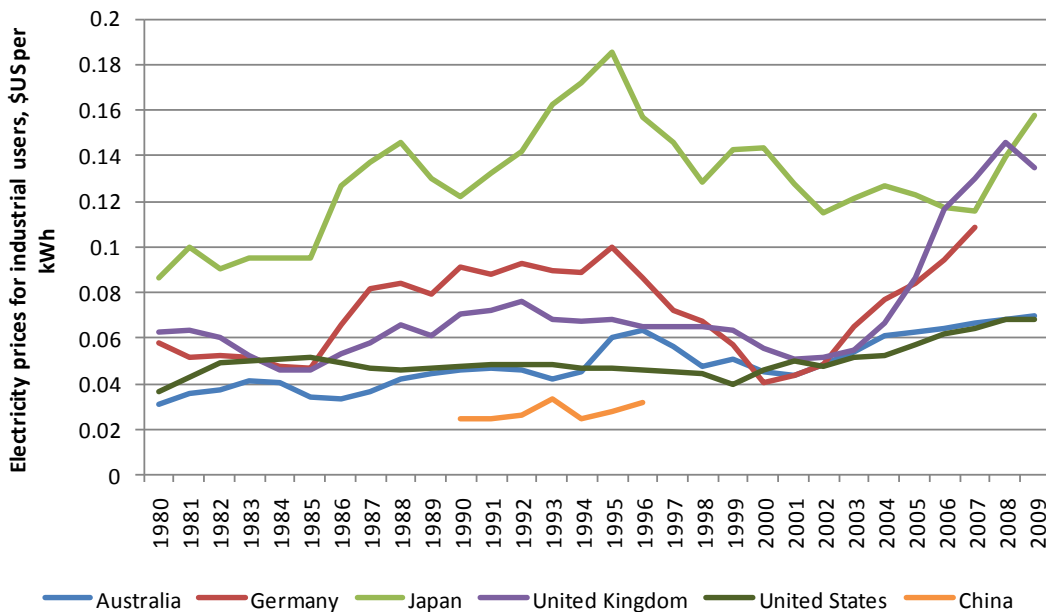
Germany and the United States in 1980, but now has a level only half that of Germany's, and two-thirds that of the USA.

Figure F illustrates one factor explaining why energy productivity is lower in Australia, China and the USA than in Japan, Germany and the UK. Countries with lower energy prices also have lower energy productivity. This suggests that energy prices are an effective mechanism to induce higher levels of energy productivity from business.

Figure E Energy productivity improvement varies by country



Source: Vivid Economics

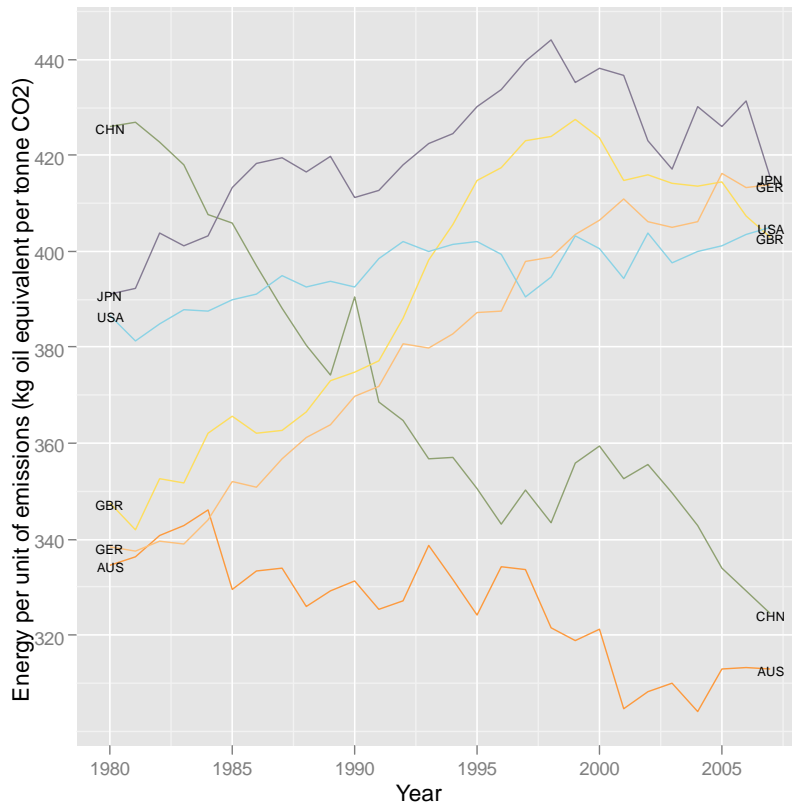
Figure F Countries with higher electricity prices have higher energy productivity

Source: IEA and Garnaut Climate Change Review

The emissions intensity of energy (CO₂ emissions per unit of energy supply) has been falling in four of the six reference countries, with the exceptions of Australia and China, where the amount of carbon emissions produced for every unit of energy used in the economy is higher today than it was in 1980. This is shown in figure G below. In Australia's case, this is because its electricity sector has a higher emissions intensity than those elsewhere, and also because the electricity sector accounts for a much larger share of energy use (while transport and direct combustion by industry and households, both lower emission sources of energy on average, account for less). Australia had a similar emissions intensity of energy as Germany and the UK in 1980, but has since become more emissions intensive while those other two countries have rapidly decarbonised, primarily as a result of coal-to-gas switching accompanied by an increase in the share of renewables.

The rapid reduction in the emissions intensity of Britain's energy sector between 1980 and 1999 is attributed to a range of factors, including the 'dash for gas' which occurred as a result of reduced regulatory and political barriers for gas generation, closure of many domestic coal mines, environmental legislation limiting sulphur emissions, and the discovery of accessible gas resources.

Figure G The amount of energy a country produces for each tonne of emissions has been falling in Australia and China



Source: Vivid Economics analysis of IEA and World Bank data

China's energy supply is the only other country out of these six, besides Australia, in which the emissions intensity of the energy supply has been increasing. The emissions intensity of China's electricity supply has been relatively constant, and it has seen only modest reductions in the emissions intensity of its power stations, yet the overall emissions intensity of the energy mix has been increasing substantially. This has been a result of changing sectoral composition, and particularly the larger role of electricity in delivering energy in China. The share of the electricity sector in energy supply in China has risen from 19 per cent to 38 per cent from 1990 to 2008 and, because the electricity sector has higher emissions intensity than the other two energy sectors, this has led to the significant decrease in energy supply per unit of emissions in China.

Australia's electricity sector

Each country has a specific set of circumstances which explain why it has a particular emissions intensity. Table A shows the breakdown of the fuel mix in the electricity generation sector for each of the countries analysed. Most countries source a significant proportion of their electricity from fossil fuel generation. However Australia and China have the largest proportion of coal fired generation.

Table A Shares of fuel mix for electricity generation in each country

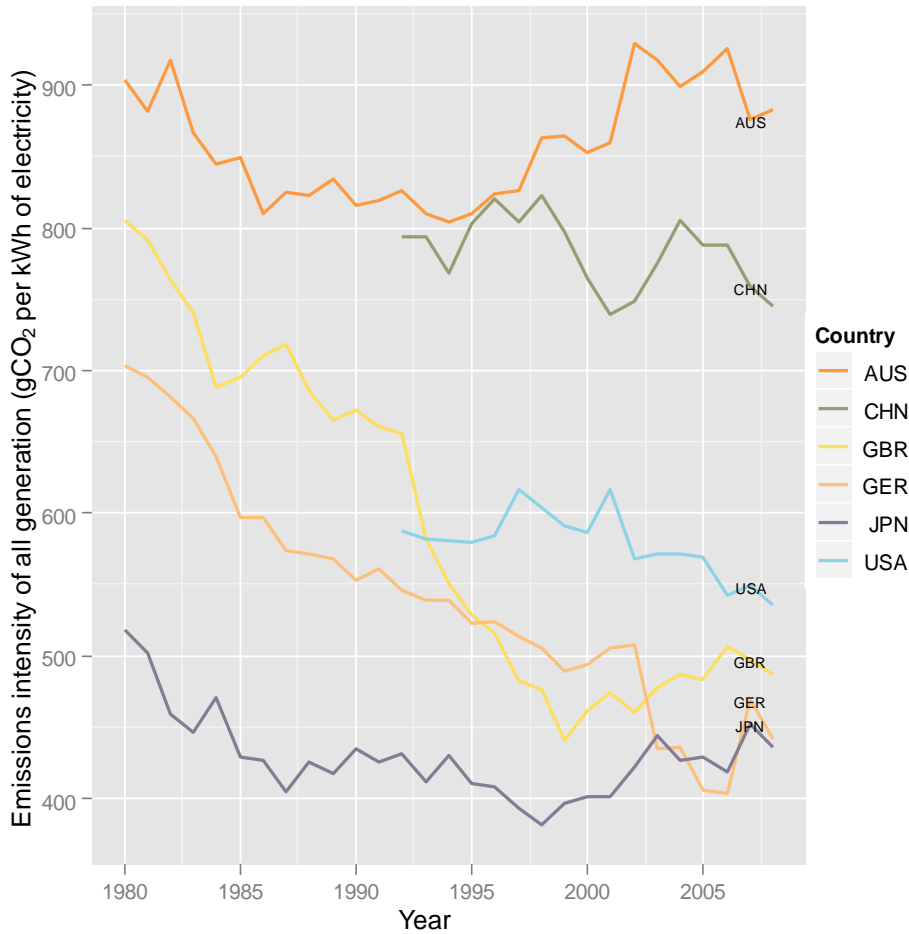
	Australia	China	Germany	Japan	UK	USA
Renewables	6%	17%	13%	9%	6%	10%
Nuclear	0%	2%	22%	27%	18%	20%
Coal	76%	79%	42%	25%	28%	45%
Gas	16%	1%	14%	32%	44%	23%
Oil	1%	1%	2%	6%	1%	1%
Other, waste, biomass	1%	0%	7%	2%	3%	2%

Note: Data is for 2009, except for China which is 2008

Source: Vivid Economics calculations from IEA data

The generation of electricity in Australia produces around 20 per cent more greenhouse gas emissions than doing so in China, and twice as many emissions than in Germany. As shown in figure H below, in 2008 the emissions intensity of Australia's electricity generation was around 880 gCO₂ per kWh, as compared to around 740 gCO₂ in China, 540 gCO₂ in the USA and less than 500 gCO₂ in the United Kingdom, Germany and Japan.

Figure H Australia’s electricity supply is one of the most carbon intensive in the world, and remained so even as other countries became less carbon intensive



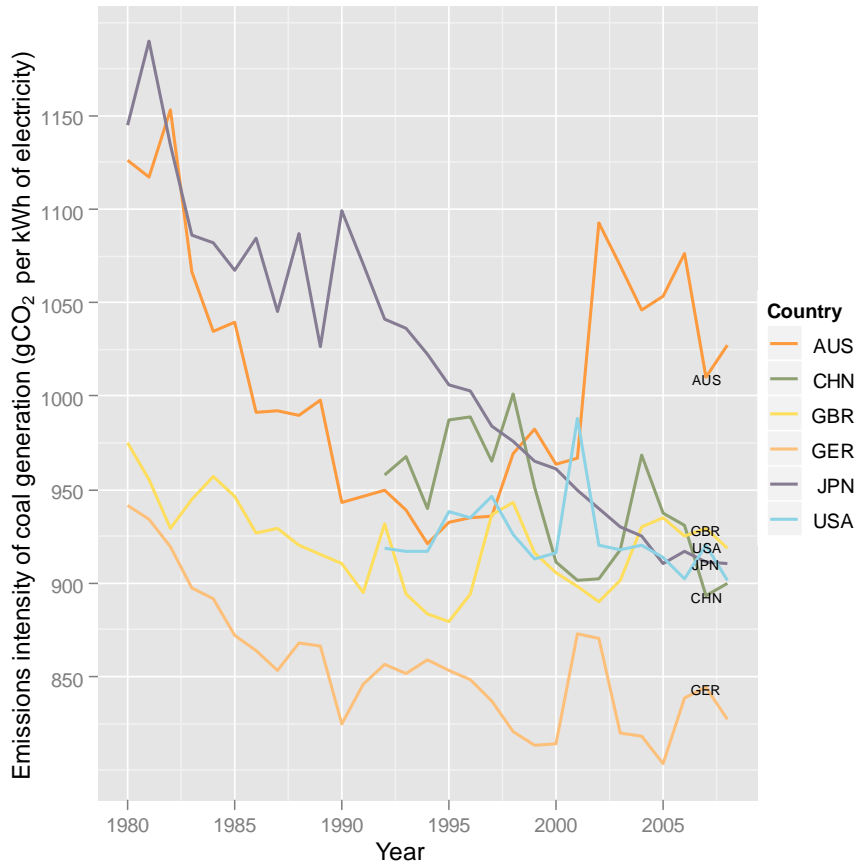
Source: IEA

Australia’s electricity sector is larger and more carbon-intensive than in the comparator countries, and has been the major reason why Australia’s carbon productivity performance has lagged that of other rich economies. The mix of fuels used to produce electricity in Australia is weighted more towards carbon than that used in many other countries, but it is not just Australia’s greater use of coal that leads to a polluting electricity sector. Australia’s coal- and gas-fired plants produce more emissions than plants using the same fuels elsewhere. The emissions intensity of countries’ coal- and gas-fired plants are shown in figures I and J below.

The reasons for Australia’s poor performance in the electricity sector are a combination of

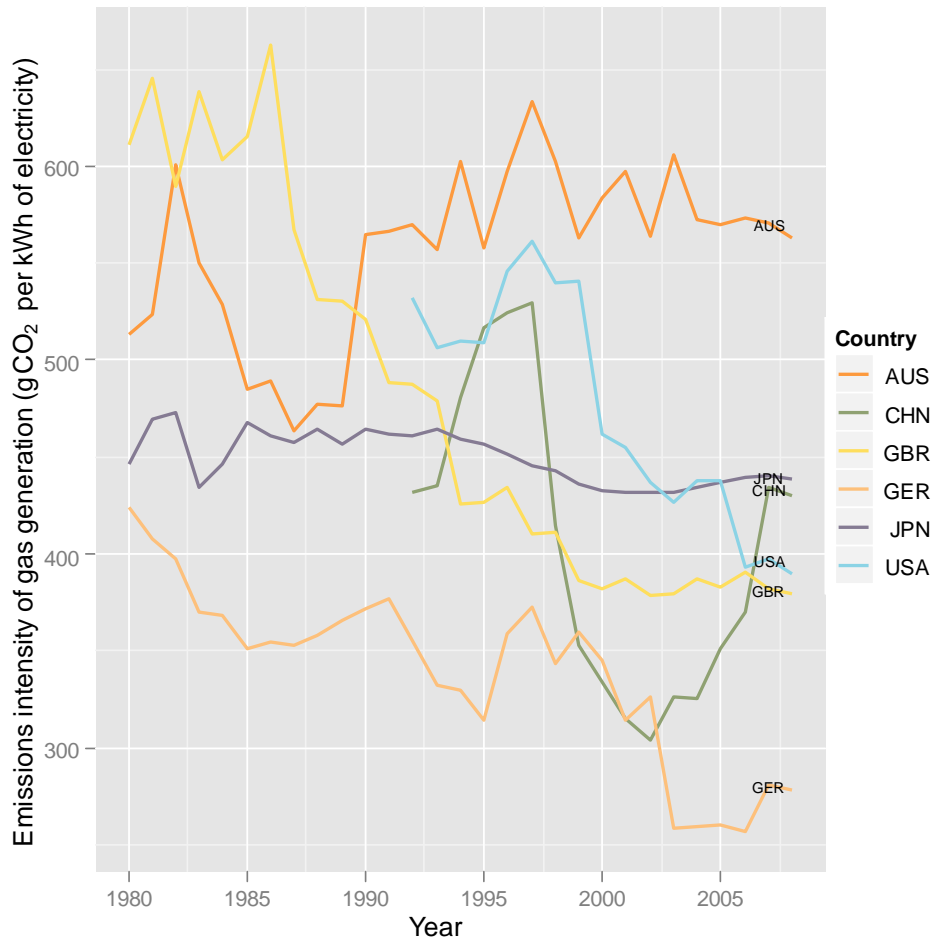
the fuels and technology in use, and the incentives and regulation within the electricity market. All of these factors can be changed by pulling policy levers. This report analyses in detail the efficiency and effectiveness of policy levers that have been used in six key economies to reduce emissions intensity and increase productivity in the electricity sector.

Figure I Australia’s coal-fired power stations are more polluting than those elsewhere



Source: IEA

Figure J Australia’s gas-fired power stations have the highest emissions intensity



Source: IEA

The creation of an efficient policy environment for the electricity sector

Investment by generators and an efficient policy environment from governments might transform Australia’s electricity sector and increase carbon productivity. Tougher policies do not necessarily equal more efficient policies. Australia could enhance its competitiveness by designing an efficient mix of policies.

Economic efficiency is defined as maximised collective well-being. Emissions reductions are efficient wherever the benefits from emissions reduction exceed the costs. The benefits come primarily from avoided global climate change in the future, and the losses associated with it, such as damage from extreme weather events, sea level rise and changes in crop

yields.

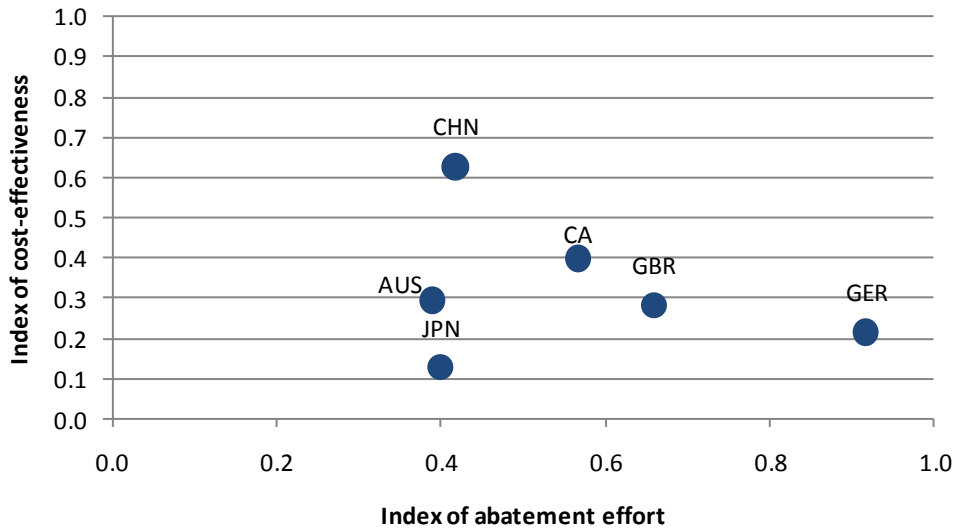
It is possible to reduce emissions in ways which are more or less costly. An efficient policy achieves emissions reductions at least cost. If emissions are reduced in an expensive manner, then resources are spent unnecessarily and society misses out on benefits which could come from alternative use of these resources.

What form might efficient policy take? *Policy efficiency*, in the context of climate change, is a measure of how close policy is to inducing an appropriate level of emissions¹ and how close it is to doing so in a cost-effective manner. The benefits from policy action will be higher, and the costs lower, with efficient policy. After carrying out a substantial and detailed quantitative analysis of policies to decarbonise the electricity sector, internationally comparable measures of policy efficiency and abatement effort have been produced. These measures take into account the different costs and the different share of abatement in each jurisdiction. Together, these measures quantify policy efficiency across countries.

The policy efficiency scores for Australia, China, Germany, Japan, the UK and California are presented in figure K. China has the most cost-effective policy mix, as most abatement in China occurs as a result of two low cost policies: the CDM and improving efficiency in coal power stations. California has the next most cost-effective policy; nonetheless, it still only achieves a score of 0.4 out of 1. Australia and the UK have the next most cost-effective policy, although the UK is closer to making enough effort than either Australia (or China), where effort is defined as abatement occurring relative to a selected target scenario. Australia has relatively cost-effective policies, but they are of insufficient scale. Germany is the closest to making enough effort, but it is not doing so in a cost-effective manner. Japan has the most fragmented policy mix and the lowest cost-effectiveness score.

¹ The appropriate level of emissions abatement is a controversial issue, and our approach to this, outlined later in the report, is based on IEA scenarios.

Figure K California and China have the most cost-effective policy, while Germany is closest to making abatement effort consistent with the selected target



Note: abatement financed by the CDM is included for China; the codes are defined as AUS Australia, CA California, CHN China, GER Germany, JPN Japan, GBR United Kingdom

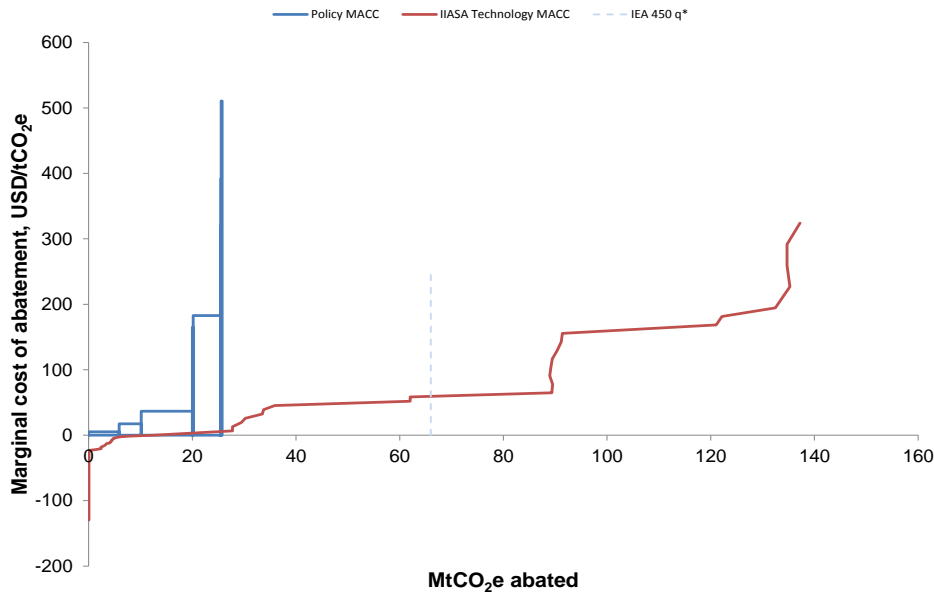
Source: Vivid Economics

The cost-effectiveness and abatement effort scores are based upon detailed quantitative analysis of policies in each jurisdiction. Policy and technology marginal abatement cost curves are constructed to enable this analysis.

A technology MACC is constructed using information on what is technically feasible and the theoretical minimum amount that it costs to achieve, regardless of whether the option is actually used. A policy MACC, on the other hand, is constructed using estimates of actual abatement and the cost of policies which have been, or are about to be, introduced. A policy MACC will typically be higher cost than a technology MACC, because it includes transaction and information costs and because governments typically do not implement the least cost bundle of policies.

A policy MACC can be compared with a technology MACC and gives estimates of the minimum amount that it would cost to achieve a reduction in emissions using the least cost technology mix. These two MACCs are presented for Australia in figure L.

Figure L Policy and technology MACCs for Australia



Source: IIASA and Vivid Economics

Current policies in Australia reduce emissions from the electricity sector by 26 MtCO₂ per annum. In order to meet its share of international abatement, under our example burden sharing arrangement, Australia’s electricity sector would have to abate 66 MtCO₂ per annum. The three policies in Australia which reduce electricity sector emissions at the lowest cost are the emissions trading scheme covering electricity in NSW and the ACT (GGAS), the Queensland Gas Target, and the large-scale renewable energy target. These three policies account for 78 per cent of abatement in Australia’s electricity sector, but account for only 30 per cent of abatement costs (if marginal costs are presumed to be the same as average costs).

The relatively cost-effective abatement induced by these three schemes could be expanded through broadening the base of each policy. The state-based schemes have obvious geographical limitations, the Queensland scheme applies to only one generation source, and the cost of the Renewable Energy Target is increased by the special treatment given to small-scale generation. Other policies in Australia, such as the Small-scale Renewable Energy Scheme and the state-based feed-in tariffs induce less abatement at a higher marginal cost.

The analysis in this report of the international experience in greenhouse gas abatement in

the electricity sector suggests that two of the most cost-effective policies are a carbon price with a broad base, and tradable renewable energy targets. Of the jurisdictions considered in this report, China and California have the most cost-effective policy. Around 95 per cent of abatement in California's electricity sector is estimated to be the result of these two policy types. In China the policy inducing the most abatement is the Clean Development Mechanism of the Kyoto Protocol, a scheme which is based upon tradable permits. Australia and the UK have similar policy efficiency, and broad, market-based policies account for 95 and 70 per cent of abatement in those countries respectively.

Detailed quantitative comparison of the cost-effectiveness and impact of policies to decarbonise the electricity sector in a range of countries provides a number of lessons to policymakers:

1. *It is possible to spend less and abate more by choosing the right mix of policies.* Even those jurisdictions with relatively cost-effective policies are still paying more than necessary to achieve abatement. Careful policy design leads to demonstrable results: California's policy has largely been designed independently from Government and on the basis of expert advice, and California has the most cost-effective policy of any jurisdiction. Sensible policy can cost less: this report estimates that the GGAS scheme, an emissions trading scheme covering electricity generation in NSW and the ACT, delivers 23 per cent of the current abatement in Australia's electricity sector while only inducing around 2 per cent of the costs.
2. *Many countries can reduce emissions at low or negative cost by reversing policies that effectively encourage emissions.* The exemption of coal from the fuel tax in Germany and the early shut down of that country's existing nuclear fleet are the two clearest examples of this. Extending the operating life of Germany's nuclear power stations by 1,800 TWh would save €31.4 billion dollars and reduce emissions by 1,560 Mt in total if it displaced existing fossil fuel generation; equivalent to a carbon price of around *minus* \$26 per tonne CO₂.
3. *The most effective policies have as broad a base as possible.* Many governments appear to find it easier to introduce expensive policies benefiting a small subset of generation than to implement the low-cost policies that affect a broader range of generation. In every country, the most expensive schemes have a narrow base, while the cheaper ones have a broader base. The most cost-effective policies have a broad base in terms of geography, generation type and technology. The CDM in China and

emissions trading schemes covering a broad generation base, such as in California, NSW and the EU, are examples of broad schemes which are cost-effective. Policy should not try to pick technology winners. The NSW emissions trading scheme reduces emissions at a marginal cost of around A\$5 per tonne of CO₂, while the equivalent cost for the NSW renewable energy feed-in tariff is A\$510 per tonne.

4. *Allow businesses and households to make choices about how to reduce emissions.* Policies in which the government sets the desired outcomes but does not specify the means are more efficient than those in which the means are directed. Renewable portfolio standards (including the Queensland Gas Scheme) and emissions trading schemes are examples of this; and are cheaper than other options such as feed-in tariffs for solar energy or the mandated shutdown of power stations in China. There may be cases in which shutdown of power stations is an efficient policy, but this decision is better left to the market in the context of a carbon price.
5. *There are gains to be had by allowing international trading in abatement.* While the level of abatement each country will adopt is unlikely to be exactly the same as modelled here, it is certainly true that the cost of abatement differs across countries. Some countries will require a higher domestic carbon price than others to achieve their targets, and so there would be savings if international trading of abatement was permitted.
6. *Some direct action policies are efficient, but this is the exception rather than the rule.* There is an element of risk in direct government intervention. Direct measures may be efficient if well targeted, such as China's household biogas digesters scheme and the early closure of inefficient power stations, but in many cases they are not and if there is imperfect information there is a high risk of inefficiency.

The achievement of abatement targets

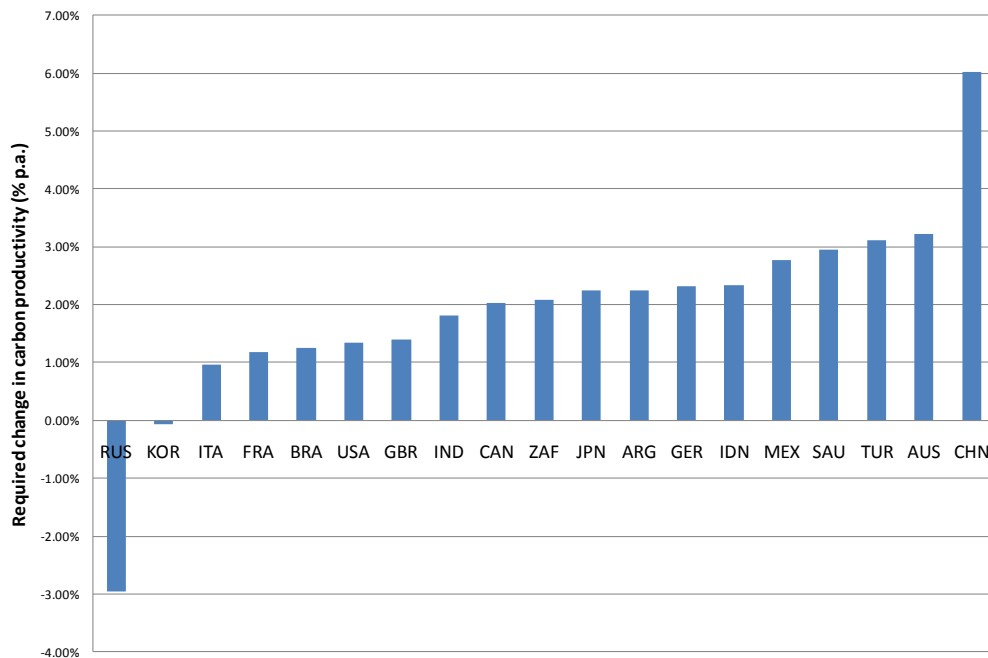
Most countries will have to improve their rate of carbon productivity growth in order to meet a share of abatement while maintaining their current rate of economic growth. Efficient policy choices in the electricity sector are an important way in which this could be achieved, particularly in Australia.

While recognising that the allocation of abatement targets across countries is complicated and controversial, an IEA scenario offers one possible allocation. Figure H gives a ranking of countries in terms of how much effort they have to make to reach their 2020 targets while maintaining projected growth in GDP per capita. Russia and South Korea are already doing

enough to meet their targets with their current carbon productivity and predicted GDP/capita growth. Russia however achieved significant reductions in emissions relative to a 1990 baseline when its command and control economy collapsed upon the fall of communism. At the bottom of the pack are Australia and China, which have the biggest changes to make.

These calculations are based on the IEA’s scenarios for stabilisation of atmospheric concentrations of greenhouse gases at 450ppm CO₂ equivalent, which is considered by the UNFCCC to be the highest concentration of greenhouse gas emissions consistent with keeping average global temperature rises under 2 degrees from pre-industrial levels (UNFCCC, 2010).

Figure H Improvements in current carbon productivity estimated to meet the selected scenario of 2020 targets



Source: Vivid Economics

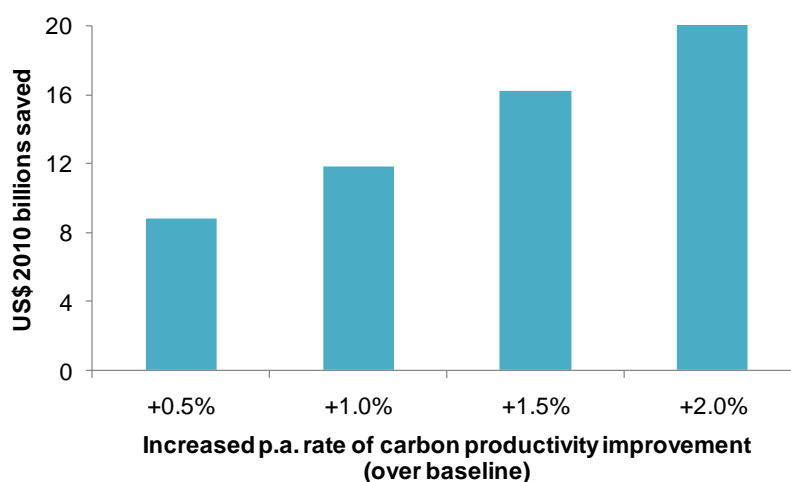
Australia’s abatement costs

Australia has historically had a low rate of improvement in its carbon productivity. Yet, a rise in the rate of carbon productivity improvement now may generate savings in the future, by making it less costly for Australia to meet a future emissions target. The value of autonomous improvements in carbon productivity is shown in figure I.

If Australia were to increase its underlying rate of carbon productivity improvement from its baseline by just 0.5 per cent per annum, then it could achieve gross savings of US\$8.8 billion gross against the estimated cost of meeting a 2020 target. If Australia were to double its rate of carbon productivity then it could achieve savings of US\$12.9 billion gross, nearly halving the cost of meeting a 2020 target. Australia might save US\$11.8 billion gross of the costs of achieving an emissions target consistent with stabilising emissions at 450ppm CO₂, equivalent to 1.1 per cent of projected GDP, if its rate of carbon productivity growth matched that achieved by Canada.

This increase in the autonomous rate of carbon productivity growth may not be costless. The costs are not estimated here, however the policy analysis in our companion report shows that large amounts of abatement, and therefore increases in carbon productivity, can occur at low or even negative cost. The reader is invited to note that the benefits to the economy of improving carbon productivity growth may be offset to some extent by the costs.

Figure I Australia might save US\$11.8 billion gross in 2020 if it costlessly achieved the same rate of carbon productivity improvement as Canada



Source: Vivid Economics and IIASA

Conclusions and recommendations

In a carbon constrained future countries that can produce more per unit of emissions will be more competitive. Australia can increase its competitiveness and prosperity in a carbon constrained future by increasing its carbon productivity trajectory.

The electricity sector is key for Australia. Australia's energy and electricity sectors are more polluting than in other comparable economies, and this accounts for a significant proportion of Australia's weaker carbon productivity performance. A low carbon transition for Australia requires investment; in turn, this can be supported by the right policy environment.

With efficient policy in the electricity sector, Australia could transform its electricity sector over time, improve its carbon productivity and reap significant benefits. The international analysis of policy efficiency suggests that a broad-based carbon pricing scheme combined with flexible complementary policies is a cost-effective policy environment. Australia already has the beginnings of these in the NSW GGAS scheme and the large-scale renewable energy target, but there is scope for each of these policies to be expanded and to achieve more abatement at a lower cost.

The transition to a low carbon economy will be felt more keenly in Australia than in some other places due to its lower carbon productivity. Australia will feel the effects of global action to limit emissions sooner than some other countries, and so it may choose to act sooner to prepare for this transition.



GE

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May 18, 2011

The Multi-Party Climate Change Committee Secretariat
GPO Box 854
Canberra ACT 2601

Dear Secretariat

RE: General Electric comments on Carbon Price Mechanism

General Electric (GE) commends the members of the Multi-Party Climate Change Committee (MPCCC) for the public release of the proposed carbon price mechanism for introduction from July 1, 2012.

GE welcomes the opportunity to comment on the proposal, and in doing so reiterates its commitment to work with the members of the MPCCC and Members of Parliament, our partners, customers and stakeholders to achieve this important reform.

In Australia, GE employs more than 6000 staff across its businesses and since our first project in 1902 we have worked actively in Australia. We have supported and are delivering on many of Australia's largest and most important energy and resources projects.

General Electric support for a price on carbon pollution

GE has and continues to advocate for an underlying price on carbon pollution, and we recognize governments around the world (including the Australian Government) are implementing or investigating options to do so through market-based schemes, regulation or a combination of both.

Following the 2010 Federal election and prior to the formation of the new Australian Government, GE was among 20 companies to join with the Clean Energy Council to issue an open letter to all MPs urging them to "support a price on carbon being implemented as soon as possible".¹

¹ Clean Energy Council, "Open letter of support for a price on carbon", September 2, 2010

GE and the other participating companies highlighted the bi-partisan support for an emissions trading scheme at the 2007 Federal election. Therefore, GE welcomed the establishment of the MPCCC soon after the new Government was formed.

On April 12, GE and other major companies issued a joint statement reaffirming their support for a carbon price and commitment to work with the MPCCC to achieve that public policy outcome.

In addition, GE has commissioned research into business readiness for transitioning to a low-carbon economy and analysis of policy options and impacts for such a transition drawing on international experience and Australian conditions. GE looks forward to sharing the findings of this research.

On May 16, GE released the findings of research it commissioned from the Economist Intelligence Unit to gauge Australian business' readiness for a low-carbon future. The survey of more than 130 senior executives in Australia found:

- more than half felt their organisation was ready for a low carbon-future;
- a third of businesses are already modeling a carbon price into operations;
- 64 percent of respondents cited carbon policy uncertainty as the biggest barrier to making further progress by holding back investment decision making.

General Electric's ecomagination initiative

As a global company, GE has implemented its ecomagination initiative to improve its energy efficiency and reduce environmental impact.

Through this initiative, GE has committed to reduce absolute greenhouse gas (GHG) emissions worldwide by 1% by 2012, reduce the intensity of GHG emissions 30% by 2008 and improve energy efficiency 30% by the end of 2012 (all versus 2004 levels). GE has already surpassed its first goal of reducing intensity of GHG emissions by 30% in 2008.

Under the ecomagination initiative, GE is committed to reporting its results and in 2009 we reported our progress against our targets:

- reduced GHG emissions from operations approximately 22% from 2004
- reduced water use by 30% from the 2006
- invested US\$1.5 billion in cleaner technologies, achieving the 2010 goal a year early and
- grew revenue ecomagination products to US\$18 billion.

Last year, GE committed to stretch these targets over the next five years to increase spending US\$10 billion in additional R&D by 2015 and ecomagination revenue growth at twice the rate of the total company, as well as reduce absolute GHG emissions and energy intensity by 25% and 50% respectively over the same period.

Carbon price mechanism principles

GE believes - and this aligns with the MPCCC approach - it is critical for the Government to provide regulatory certainty about the carbon price mechanism, how the price will be pegged, its coverage and compensation.

The MPCCC has agreed to and released 11 principles for a carbon price mechanism. These are:

- environmental effectiveness
- economic efficiency
- budget neutrality
- competitiveness of Australian industries
- energy security
- investment certainty
- fairness
- flexibility
- administrative simplicity
- clear accountabilities
- supports Australia's international objectives and obligations

GE believes that the MPCCC should recognize a carbon price will complement a range of policies and programs – many of which have been implemented and managed by successive Australian Governments.

Therefore, the Government should preserve existing complementary measures, including the Renewable Energy Target, Clean Energy Initiative and Smart Grid Smart City, and follow through on commitments to a range of new measures, such as the emissions standard for new coal-fired power stations and delivery of recommendations from the Prime Minister's Energy Efficiency Task Group.

Climate Change and Energy Efficiency Minister The Honourable Greg Combet MP has stated a carbon price was part of the "right policy mix [which] means ensuring that Australia remains competitive in the inevitable low pollution, clean energy world of the future".²

A balanced mix does not seek to exclude fuels or technologies, rather provide maximum greenhouse gas abatement in a secure and sustainable energy system.

GE recommendations to MPCCC

GE provides the following comments on the "broad architecture of the carbon price mechanism" released by the MPCCC.

1. Start date

A July 1, 2012 commencement for the carbon price has been proposed.

GE supports the proposed start date on July 1, 2012, on the basis that comprehensive industry and stakeholder consultation on the draft legislation and the passage of subsequent legislation through the House of Representatives and Senate is completed this year.

² The Honourable Greg Combet MP, "Address to Australia-China Ministerial Dialogue on Climate Change", March 30, 2011

The Government will also need to provide time and resources for administrative, education and compliance functions to be put in place.

The introduction of a carbon price is one of the most substantial changes since the introduction of the Goods and Services Tax. *A New Tax System (Goods and Services Tax) Act 1999* was passed by the Parliament on June 28, 1999 and came into force on July, 1 2000.

2. Length of fixed price period

According to the MPCCC paper, the fixed price phase could be for three to five years, with the price increasing annually at a pre-determined rate.

GE urges the MPCCC and Government to consider the soonest possible transition from a fixed price on carbon to the market-based mechanism of an emissions trading scheme (ETS).

The legislation put before the Parliament should be explicit about the length of the fixed price phase and the annual rate of increase, before transitioning to an ETS.

3. Transition arrangements

The MPCCC paper envisages the decision to transition from a fixed to "flexible" price be made 12 months before the end of the fixed price phase, and after a series of issues are considered, including:

- state of the international carbon market
- developments on carbon pricing in key competitor economies
- progress toward meeting Australia's GHG emission targets
- potential impacts on the economy, households, workers, regions, communities and competitiveness of Australian industry
- investment certainty in clean technologies, energy efficiency and carbon markets.

While the previous Carbon Pollution Reduction Scheme proposed a \$10 one-year fixed price for carbon, there has been strong bipartisan support (dating back to 2007) for an ETS approach.

Minister Combet has stated that "a market approach in the Government's view is the cheapest way to reduce carbon pollution"³ and former Liberal leader Malcom Turnbull argued "an Australian emissions trading scheme, with a carbon price set by the market, would improve business investment certainty".⁴

GE, as stated above, believes the Government should define the length of the fixed price phase in legislation and strive for this transition to occur as soon as possible.

The transition will be informed by the final report of the Garnaut Climate Change Review Update, due to be presented to the Government by May 31, 2011 and the recommended rate of carbon price.

³ *ibid*

⁴ The Honourable Malcolm Turnbull MP, "Carbon Pollution Reduction Scheme Bill 2000", February 8, 2010

4. Coverage

The MPCCC proposal excludes agricultural emissions sources, on the grounds it will be covered by the Carbon Farming Initiative.

However, it flags the potential for the carbon price mechanism to cover all six GHGs – carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons - counted under the Kyoto Protocol and for the stationary energy, transport and industrial process sectors as well as fugitive emissions (other than those from decommissioned coal mines) and emissions from non-legacy waste.

GE believes the broadest possible coverage will ensure firms and industry sectors operate within equivalent market rules. In addition, GE urges the Government to develop comprehensive compensation measures for affected industries, businesses and households.

5. International linking

As the MPCCC paper indicates, Australia will need to transition to an ETS before its carbon price scheme can be linked internationally and before international emissions units can be used for compliance.

GE commends the Government for its ongoing commitment to monitor international developments, and to work with overseas governments on the implementation of their own policies and programs.

6. Assistance and other matters still to be determined

(a) Compensation and assistance

The Government has committed that “every cent of the revenue raised from the large polluting entities will then be used to assist families with their household bills, to support jobs in the most affected industries, and to invest in programs to tackle climate change”.⁵

GE urges the Government to finalise negotiations with affected industries and stakeholders to provide greater clarity on the allocation of the “revenue” from the imposition of a carbon price.

Specifically, GE welcomes the Government’s commitment to negotiate with liquefied natural gas (LNG) producers who are investing substantially in new production and export facilities. LNG is a transitional fuel for Australia, which currently drives 80% of its own electricity from coal-fired generation, and for markets around the world.

GE recommends the Government frame assistance measures for export-intensive trade-exposed industries that provide incentives for businesses to undertake abatement, invest in new low-emission technologies, prevent carbon leakage, preserve carbon price signals and are consistent with Australia’s international trade obligations.

⁵ The Hon Greg Combet, “Address to Australia-China Ministerial Dialogue on Climate Change”, March 30, 2011

GE believes the Government should target revenue from a carbon price to support the development of clean energy technologies as well as for pilot demonstrations and trials. This investment would complement the suite of programs under the Australian Government's Clean Energy Initiative.

(b) Complementary measures

GE believes the Government needs to maintain a full range of complementary measures and recommit to key initiatives proposed.

The existing complementary measures include:

- 20% 2020 Renewable Energy Target, which was revised last year to establish a separate Large-scale Renewable Energy Target (LRET) but the Government needs to monitor the issue of banked RECs from small-scale and household deployment under the former Renewable Energy Target being surrendered against LRET;
- Clean Energy Initiative to provide grant funding for large-scale demonstration of carbon capture storage (CCS Flagships) and solar (Solar Flagships) and support the Australian Centre for Renewable Energy. A carbon price will support the development of demonstration projects, but additional funding mechanisms should also be explored particularly where the demonstration projects are first-of-a-kind;
- Smart Grid Smart City to provide funding for a demonstration of smart grid technologies, including the integration of electric vehicles and distributed generation, and work with other governments through the Ministerial Council on Energy on a national approach to smart grid.

The key initiatives proposed include:

- implementing the recommendations of the Prime Minister's Energy Efficiency Task Group and work toward a national energy efficiency target;
- investing \$1 billion over 10 years for Connecting Renewables – as pledged in the 2010 election campaign - to provide support for transmission infrastructure for large-scale renewable energy projects. The Government has pledged the first \$100 million from this fund will be allocated over the first four years. GE believes the funding needs to be increased in early years to support increased projected investment and deployment of renewable energy projects as a result of RET and Solar Flagships;
- introducing an emissions standard for new coal-fired power stations – as pledged in the 2010 election campaign – to ensure GE believes such a standard complements a price on carbon and the Government's CCS Flagships program. GE believes the standard should be based on a life-of-asset average annual emissions standard equivalent to combined cycle gas for any new coal-fired power stations. The commitment to CCS Ready is insufficient to drive investment in CCS and prevent new coal-fired power stations being constructed and locking in high emissions for much of or the whole life of the plant;
- investing \$80 million over four years for Low Carbon Communities – as pledged in the 2010 election campaign – to provide funding for local governments and community initiatives to manage energy use and reduce carbon emissions. GE looks forward to commenting on the program's draft guidelines, but urges the Government to consider an increased commitment over a longer term; and

- minimizing barriers to distributed energy generation, as highlighted by the Ministerial Council on Energy and by the Australian Energy Market Operator, should be pursued as a low-carbon solution that is not only economic today, but can replace some of the requirement for new centralised power generation as well as help avoid spend on network growth which is the primary factor putting pressure on electricity prices. Further consultation with industry and stakeholders on necessary amendments to national electricity regulations required to unlock the full potential of distributed solutions to lower carbon emissions and add resilience to the electricity grid should be undertaken.

(c) Low Carbon Jobs and Innovation Council

The MPCCC and Government processes are correctly focused on consultation and negotiations around the formulation of a carbon price.

The formation of Business and NGO Roundtables and the release of the MPCCC's carbon price mechanism paper for comment are welcomed.

Based on a carbon price applying from July next year, efforts should soon commence on how businesses in Australia not only prepare and comply with the price, but how they transform, invest, innovate and employ.

Significantly, the Australian Government should seek to match its existing programs, particularly in research and development, training and infrastructure, to complement the approaches businesses may be considering with a carbon price in place.

GE believes a cross-sector Low Carbon Jobs and Innovation Council could provide direct advice to the Government on refining existing policies and programs, investing in new initiatives or undertaking additional activities to support national prosperity, jobs and skills growth, business investment and innovation, international competitiveness and market development. It should also seek to work co-operatively with the States and Territories to harmonise initiatives and approaches.

A number of the companies represented of the Council would be active in Australia, but also have experience working with emissions trading scheme, carbon price and other climate change policies in other parts of the world.

The proposed Council would also seek to include representatives from fields of research and development, finance and investment, the States and Territories.

Summary of GE's position and recommendations

GE welcomes the opportunity to provide further input to the MPCCC following the release of the Garnaut Review Update and the release of draft legislation for consultation.

GE believes the Government, through the MPCCC, should establish a Low Carbon Jobs and Innovation Council to provide direct advice to Government on businesses in Australia not only prepare and comply with the price, but how they transform, invest, innovate and employ.

GE in-principle supports a price on carbon being introduced in Australia from July 1, 2012 with transitioning from a fixed price phase to an emissions trading scheme as soon as possible.

GE notes the exclusion of agriculture, but believes the carbon price should apply as broadly as possible across sectors of the Australian economy and for the six GHGs covered under the Kyoto Protocol.

GE urges the Government to deliver on its commitment to use "every cent" from the carbon price for assistance for households and affected industries. Assistance should provide incentives for abatement, investment in new technologies, and support export-intensive trade-exposed sectors within Australia's international trade obligations.

GE urges the Government to maintain full range of existing complementary measures and deliver on proposed initiatives to support the operation of a carbon price to help Australia transform to a clean energy economy.

Conclusion

GE acknowledges the wide-ranging consultation and public debate on the introduction of a price on carbon pollution in Australia. Both are necessary.

As a company with 109 years' experience working with partners, customers and governments in Australia and the current employer of more than 6000 Australians with the ambitions to do more, GE has sought to constructively contribute to the MPCCC's deliberations and the public discussion about allocating a price to carbon pollution.

GE believes a price on carbon pollution is a significant step to transforming Australia to a clean energy economy.

With complementary measures and targeted compensation, a carbon price can underpin Australia's future international competitiveness in an increasingly carbon-constrained world, support continued employment growth and investment, provide greater energy security and sustainability for household and industry users, as well as help Australia meet its international obligations to mitigate the worst impacts of climate change.

GE welcomes the opportunity to work with the MPCCC, all Members of Parliament, our partners and customers, and other key stakeholders to achieve policy certainty on the pricing of carbon pollution.

Yours sincerely



Steve Sargent
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GE

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August 22, 2011

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Climate Strategy and Markets Division
Department of Climate Change and Energy Efficiency
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RE: General Electric submission on Clean Energy Legislative Package

General Electric welcomes the release of Clean Energy Legislative Package and the opportunity to provide comment on the draft Bills.

GE noted the Government's "Securing a clean energy future: The Australian Government's Climate Change Plan" and the Multi-Party Climate Change Committee (MPCCC) "Clean Energy Agreement" in framing its comments.

In addition to the commitment to introducing a price on carbon from July 2012, an Emissions Trading Scheme from July 2015, an 80% greenhouse gas emissions reduction over 2000 levels by 2050 and a full suite of complementary measures, the retention of the 20% 2020 Renewable Energy Target (RET) is a key pillar of the Clean Energy Future agenda.

Future reviews of the Renewable Energy Target

GE urged the MPCCC to retain the RET as amended last year, and recommended the Government to monitor the surrender of "banked RECs" against Large-scale Renewable Energy Target (LRET) liabilities.

Section 162 of the *Renewable Energy (Electricity) Act 2000* ("the Act") requires a biennial review of operation of renewable energy legislation, requiring 162(1) "the Minister must cause an independent review of the following to be undertaken as soon as practicable after 30 June 2012 and every two years after that date".

The MPCCC Climate Change Agreement provided for the establishment of the independent Climate Change Authority to "conduct regular reviews on the carbon price mechanism, NGER reporting, the Renewable Energy Target and other matters upon request".

Section 213 of the draft *Clean Energy (Consequential Amendments) Bill 2011* seeks to amend Section 162 of the Act to allow the Authority to conduct the biennial reviews of the RET. The amendment reproduces the Act provisions -

- "(a) the operation of this Act and the scheme constituted by this Act;*
- (b) the operations of the regulations;*
- (c) the operation of the Renewable Energy (Electricity) (Large-scale Generation Shortfall Charge) Act 2000;*
- (d) the operation of the Renewable Energy (Electricity) (Small-scale Technology Shortfall Charge) Act 2010;*
- (e) the diversity of renewable energy access to the scheme constituted by this Act, to be considered with reference to a cost benefit analysis of the environmental and economic impact of that access".*

As the reviewer of the RET, the Authority - under the draft *Climate Change Authority Bill 2011* - stipulates "principles" that it must have regard to. Specifically, it states in Section 12(a):

- "the principle that any measures to respond to climate change should:*
- (i) be economically efficient; and*
- (ii) be environmentally effective; and*
- (iii) be equitable; and*
- (iv) be in the public interest; and*
- (v) take account of the impact of households, business and communities; and*
- (vi) support the development of an effective global response to climate change; and*
- (vii) be consistent with Australia's foreign policy and trade objectives".*

Section 12(b) of the Bill includes *"other principles (if any) as the Authority considers relevant"*.

Section 57 of the Bill provides for the Climate Change Minister to give directions to the Authority, but 57(4) requires a Ministerial direction *"not be inconsistent with objects"* of *Clean Energy Act 2011*, *Carbon Credits (Carbon Farming Initiative) Act 2011*, *National Greenhouse and Energy Reporting Act 2007* and *Renewable Energy (Electricity) Act 2000*.

The objects of the Renewable Energy (Electricity) Act 2000 Section 3 are:

- "(a) to encourage the additional generation of electricity from renewable sources; and*
- (b) to reduce emissions of greenhouse gases in the electricity sector; and*
- (c) to ensure that renewable energy sources are ecologically sustainable".*

While the *Climate Change Authority Bill 2011* requires the Minister's direction to the Authority to be consistent with the objects of the Act, the Authority has a different set of guiding principles that may or may not be consistent with the RET.

Also under the MPCCC agreement, "the Authority will be required to hold public consultations as part of each of its reviews. This will include public hearings and a process of public submissions".

Review of Clean Energy Finance Corporation's role and relationship with RET

In addition to the legislated biennial reviews of the RET and public consultation for Authority reviews, the MPCCC agreed "the Government will formally consult with the renewable energy industry, including wind producers about the role of the CEFC and its relationship with the Renewable Energy Target".

Legislation to establish CEFC is expected to be introduced in 2012, and GE looks forward to the opportunity to provide input of the draft legislation and investment mandate of the CEFC.

The Government needs to clarify the timing and scope of the review of the CEFC's relationship with the RET, and whether this review will also be undertaken by the Authority.

Recommendations:

The Renewable Energy Target is a prime driver of renewable energy generation in Australia. As a compliance market, future Government intervention and any further amendments to the scheme will have impacts on the market for certificates for the Large-scale Renewable Energy Target and the Small-scale Renewable Technology Scheme. Therefore, the Government should legislate to require future reviews of the RET be assessed against the objects of the scheme and provide for the renewable industry to be consulted as per the MPCCC agreement.

1. Section 12(a)(viii) of the *Climate Change Authority Bill 2011* should be created to extend the principles guiding the Authority to include "*the objects of the Clean Energy Act 2011, Carbon Credits (Carbon Farming Initiative) Act 2011, National Greenhouse and Energy Reporting Act 2007 and Renewable Energy (Electricity) Act 2000*";
2. Section 11 of the Bill be extended to ensure the functions of the Authority is "*required to hold public consultations as part of each of its reviews. This will include public hearings and a process of public submissions*";
3. Section 213 of draft *Clean Energy (Consequential Amendments) Bill 2011* should create Section 162 (12)(c) to require the Commonwealth Government's response to Authority's RET review to include "*the renewable energy industry*";
4. Section 213 of the Bill should be revised to correct Section 162 (1)(c) of the Act to be "*the operation of the of the Renewable Energy (Electricity) (Large-scale Generation Shortfall Charge) Act 2010*" rather than "2000".

If I can provide further information or clarification please contact me on 0457 507 389 or kirby.anderson@ge.com.

A handwritten signature in black ink, consisting of a stylized, jagged initial 'K' followed by a long, horizontal, slightly wavy line.

Kirby Anderson
Policy Leader – Energy Infrastructure
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GE Energy