February 22, 2008

GARNAUT CLIMATE CHANGE REVIEW
Level 2, 1 Treasury Place
MELBOURNE VIC 3002

SUBMISSION TO THE GARNAUT CLIMATE CHANGE REVIEW

Chevron Australia (Chevron) welcomes the opportunity to make a submission to the Garnaut Climate Change Review.

Chevron’s submission does not address the full ambit of issues contained in the Climate Change Reviews Terms of Reference but focuses upon three areas of climate change policy consideration:
- Important principles when considering climate change policy;
- Climate change policy options for Australia; and
- Design considerations for placing a price on emissions of greenhouse gases.

Chevron supports flexible and economically sound policies and mechanisms that protect the environment, as part of our action plan to reduce greenhouse gas emissions from our business operations. Other components of Chevron’s action plan include; reducing emissions and increasing energy efficiency; investing in research, development and improved technology; and pursuing business opportunities in promising, innovative energy technologies.

Chevron is the largest holder of natural gas resources in Australia with our primary interests comprising a one sixth interest in the North West Shelf project and 50% equity and operator of the Greater Gorgon Area natural gas resource. The Greater Gorgon gas resource comprises approximately 25% of all the natural gas discovered to date within Australia. Chevron and its joint venture partners ExxonMobil and Shell, are working toward commercialising this gas resource by establishing a major liquefied natural gas (LNG) processing centre on Barrow Island, approximately 60 km off the north west coast of Australia. Ongoing efforts to reduce greenhouse gas emissions from this proposed project have resulted in a reduction in emissions intensity from 0.89 to 0.35 tonnes of CO₂e per tonne of LNG produced. A component of this improvement in greenhouse intensity has been the proposal to sequester carbon dioxide contained in the reservoir gas that would otherwise be vented to the atmosphere, deep below Barrow Island. This commitment, which is projected to cost at least one billion dollars, is a clear demonstration of Chevron’s, and its partners, commitment to tackling greenhouse gas emissions.
Natural gas is widely recognised as having around half the life cycle greenhouse gas emissions and reduced emissions of sulphur dioxide and particulates compared to alternative base load fuels such as coal. Natural gas represents the least greenhouse intensive fuel for base load power generation short of adopting nuclear power. As such the increased use of natural gas both within Australia and internationally has an important role to play in the drive to reduce the growth in global emissions particularly in the short to intermediate term. As climate change is a global phenomenon it is important that any climate change policy adopted by Australia reflect the life cycle emissions intensity of various energy options and not just the emissions associated with producing that energy in Australia.

By way of illustration, the Gorgon Project is planned to produce approximately 15 million tonnes of liquefied natural gas per year for export to Pacific Basin markets which will result in an additional 5.4 million tonnes of greenhouse gas emissions per year in Australia. The life cycle greenhouse gas emissions associated with the energy produced from the Gorgon Project (that is the emissions within Australia resulting from the production of the LNG and the emissions from the burning of the gas by the end use consumers, for example in Japan and China) will amount to approximately 48 million tonnes per year. This compares to approximately 95 million tonnes of greenhouse gases per year if that energy demand was met from Australian or internationally sourced coal. The use of LNG from the Gorgon Project to provide energy in Pacific Basin markets will result in 47 million tonnes less greenhouse gas emissions per year compared to a scenario where coal had been used to meet that energy demand. Government policy should seek to encourage the development of the Australian LNG industry given this lower life cycle emissions intensity and the role that LNG can play in reducing the growth in global emissions, even though it may result in a modest increase in Australia’s greenhouse gas emissions.

Australia has world class undeveloped natural gas resources which provide the opportunity to reduce the growth in greenhouse gas emissions associated with the provision of energy, not just within Australia but throughout the Asia and Pacific Basin. However, the development of these gas fields is not without its technical and hence economic challenges. Most of this gas is located either in very deep water (water depths greater than 1000m) or is distant from established infrastructure. Without a competitive investment environment these gas resources will not be developed, and the resulting energy demand will be met from competing fuels such as gas from countries that have made no commitments to reducing greenhouse gas emission such as the Middle East or more likely from coal. Any policy that acts to reduce Australia’s emissions of greenhouse gases, but results in Australian natural gas being displaced in international energy markets by coal, can only be considered as counter productive. Greenhouse policy should in the short to intermediate term support, rather than act as a disincentive to the establishment of new gas-related industries.
Seven Guiding Principles for Addressing Climate Change

Chevron shares the concerns of governments and the public about climate change and recognizes that the use of fossil fuels to meet the world's energy needs is a contributor to an increase in greenhouse gases in the Earth's atmosphere.

The Intergovernmental Panel on Climate Change concluded in its Fourth Assessment Report, released in 2007, that "warming of the climate system is unequivocal," and that it is "very likely" that a significant level of warming is due to human activity.

Greenhouse gas emissions come from a variety of sources; power generation, transportation, agriculture and land use, manufacturing, and other activities. Fossil fuels (including coal, oil and natural gas) release carbon dioxide during production and consumption. Fossil fuels are also the primary source of energy for the global economy, which is in the midst of a prolonged expansion that is contributing to a rising quality of life in many parts of the world, particularly in developing countries. Based on current projections of population and economic growth, the world's demand for energy will increase substantially over the next 25 years. The majority of that energy will be provided by fossil fuels, even as lower-carbon alternatives continue to emerge.

As we work to reduce emissions of greenhouse gases, our collective challenge is to create solutions that protect the environment without undermining the growth of the global economy. Chevron offers seven principles as guideposts for the development of policies. The principles are based upon:

- Global Engagement
- Energy Security
- Maximise Energy Conservation
- Measured and Flexible Approach
- Broad, Equitable Treatment
- Enable Technology
- Transparency.

Global Engagement

The reduction of greenhouse gas emissions must be shared equitably by the top emitting countries of the world through long-term and coordinated national frameworks.
Greenhouse gases do not recognize sovereign borders. It is the cumulative effect of greenhouse gases in the atmosphere that affects the climate, and it will require integrated and flexible global carbon management to effect change. Most emissions come from a relatively small number of countries, with absolute levels currently highest in developed countries, but emissions rising the fastest in developing countries. Equitable sharing among all top emitting nations will promote the efficacy of greenhouse gas emissions reductions and will help ensure that individual countries are not put at competitive disadvantage.

**Energy Security**

Oil, coal and natural gas are expected to dominate energy supply for decades to come. Climate policy must recognise the role these critical energy sources play to ensure security of supply and economic growth.
To meet projected global energy demand, we will need all the energy we can develop. Reliable, affordable energy supplies are crucial to the development of strong economies, sustained improvements in the quality of life and the eradication of poverty. Even with accelerated development of low- and non-carbon energy sources, fossil fuels will continue to provide most of the world’s energy needs. Future efforts must be twofold:

- advance the development of non-carbon alternatives; and
- develop ways to reduce emissions from fossil fuels.

**Maximise Conservation**

Energy efficiency and conservation are the most immediate and cost-effective sources of "new" energy with no greenhouse gas emissions. Government programs to promote energy efficiency and conservation must continue and should be enhanced.
Efficiency plays a key role in GHG reductions.

Energy-Related Global CO₂ Emissions in Billion Metric Tons

[Graph showing emissions from 2005 to 2030, indicating a 16% reduction by 2025 and 65% by 2030.]


*Based on IEA analysis. The IEA's Alternative Policy Scenario takes into account policies/measures in countries related to energy security and energy-related CO₂ emissions, which are assumed to be adopted and implemented. Technologies not yet commercially demonstrated are not included.

The world is getting more efficient – but can do better.

[Graph showing efficiency improvements in energy consumption, with notes on potential savings in oil consumption and efficiency gains in China and the United States.]

Chart Source: International Energy Agency Statistical Data
The private sector should increase efforts to enhance efficiency in everything from manufacturing and transportation to building management and construction. Consumers should be committed to behaviors and decisions that can minimise their individual carbons emissions impacts.

**Measured and Flexible Approach**

Greenhouse gas emissions reduction objectives must avoid a disruptive economic impact and allow for realistic turnover of capital and a phase-in of new, low-carbon technologies. Periodic "checkpoints" are advised as new scientific and economic impact information becomes available.

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**Source Date:**


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As we develop policies, we need to remain pragmatic, realistic and flexible about solutions. It took a century to create the modern energy industry and half as long to realize groundbreaking advances such as the computer industry and the development of the Internet. Addressing climate change in a meaningful way is a far more complex, long-term proposition, requiring implementation of multiple solutions. Along the way, it will require periodic assessments to determine if the right results are being achieved from climate change policies, if actions are being shared equitably, and if global economic growth continues.
**Broad, Equitable Treatment**

Broad and equitable treatment of all sectors of the economy is necessary to ensure no sector or company is disproportionately burdened.

Greenhouse gas emissions are a function of many activities, from manufacturing and agriculture to how we power our homes and how much we drive. Policies should be implemented equitably across all sectors, so that all significant sources of emissions are addressed. This broadly shares the challenge of emission reductions, making it more likely to succeed, and creates a level playing field.

**Enable Technology**
Government support and partnerships with the private sector for pre-competitive research and development in carbon mitigation and clean energy technologies must continue at an accelerated pace.

Emerging technology and as-yet-unknown technological breakthroughs have the potential to significantly reduce greenhouse gas emissions if they can be developed to commercial scale. At the same time, we should realize there is no "silver bullet," and climate change benefits will come from multiple solutions that will be developed over time. Having the right policies in place that encourage capital investment in technology and infrastructure will help.

**Energy Efficiency**
Technology can create enhanced energy efficiency across a wide range of activities. Buildings, for example, currently and effectively generate substantial emissions. New advances in design and construction, such as ventilated double-skin facades, glass ceilings and advanced batteries that use stored solar power, can significantly reduce power demand and lower CO2 emissions.

**Natural Gas**
Natural gas is only built as CO2-intensive as coal per unit of electricity generated. New technology can enable the efficient production and transmission of natural gas supplies for power generation, as well as the development of attractive diesel fuel from natural gas.

**Biofuels and Renewables**
Technology is advancing across a wide range of renewable energy sources—biofuels, wind, solar, geothermal, and others. Catalytic conversion technology, for example, is now on the horizon to enable a wide variety of agricultural and forest waste to be manufactured into non-carbon transport fuels.

**Nuclear Energy**
Nuclear power is another option in the energy portfolio and is carbon-emissions free. Significant strides have been made in operating safety as well as measures to address waste storage issues.

**Carbon Capture and Storage**
CO2 resulting from the production and combustion of fossil fuels can be captured and stored with current technologies, albeit at great costs. To capture a significant amount of the world’s CO2 emissions, particularly from coal-fired power plants, will require new large-scale infrastructure initiatives. Understanding the commercial scale of this technology and the cost is critical.


**Transparency**
The costs, risks, trade-offs and uncertainties associated with climate policies must be openly communicated.

Developing solutions of the scale required by the climate change challenge will be a complex endeavor. It is vitally important to understand and fully communicate the economic and social costs of various policies and the projected environmental benefits,
both in the near term and the long term, so we can agree on solutions that are fair, balanced and effective.

**Measuring the cost of greenhouse gas emissions abatement.**

This representational chart was adapted from an analysis of greenhouse gas emissions abatement costs conducted by McKinsey & Company. It measures the relative cost (per tonne of carbon dioxide equivalent reduced) of a number of different abatement measures. In the "low" range are a variety of energy efficiency measures such as lighting and water heating. At the midpoint are measures such as the successful development of cellulose derived ethanol and increased forestation. This type of analysis can help provide the framework for policy makers to better understand the cost of different abatement measures. Chevron notes that abatement cost curves will differ between regions based on the abatement options available and the nature of climate change policy within that region. This highlights the need for reliable and rigorous abatement costs curves to be developed for Australia to inform the community about the cost of achieving desired emissions reductions. Abatement cost curves used to underpin climate change policy for Australia should be developed with input from a wide range of stakeholders and be subject to comprehensive review prior to being finalized.

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Climate Change Policy Options for Australia

While it is possible that energy savings (efficiency improvement) measures may result in a reduction in Australia’s greenhouse gas emissions at little nett cost, any significant reduction in Australia’s emissions (or in any other jurisdiction) will only be achievable at a cost to the economy. With the technologies available today that cost is likely to be significant. For example the Intergovernmental Panel on Climate Change special report into Carbon Capture and Storage published in 2005, estimated that abatement costs for coal fired power generation to be in the range of US $20-70 per tonne CO$_2$e. Rising costs associated with the execution of major capital projects throughout the world since 2005 suggest that these cost estimates are likely to be conservative.

The replacement of significant coal fired electrical power generation capacity with renewable or nuclear energy in Australia comes at an abatement cost with a similar order of magnitude to that of coal fired electrical power generation with carbon capture and storage. Even if these costs can be reduced significantly there will still remain a large cost burden to be shared across the Australian economy. Consequently the primary consideration in framing any climate change policy should be how to drive emissions reductions at the lowest cost and how to ensure that this cost is equitably shared across the economy.

The development of climate change policy in Australia over the last decade has proceeded rapidly and not always in a coordinated and consistent fashion. The report of the Prime Minister’s Task Group on Emissions Trading (pages 37 to 42) highlighted the “plethora of policies at the federal and state/territory levels” and that “while these policies have helped to ensure that Australia is on track to achieve its Kyoto target, they have varied widely in cost and effectiveness”.

A lack of a coordinated policy response across all levels of government is creating an unnecessary regulatory burden which is increasing the cost of doing business in Australia. The need for compliance with an increasingly complex, duplicative and inconsistent regulatory environment can distract firms from focusing on reducing emissions from their operations.

When considering investments in Australia, companies such as Chevron are confronted with:

- Mandatory renewable energy target schemes that exist in a number of States and are currently proposed to be implemented at Commonwealth level
- Mandatory energy efficiency assessments that are currently required by Commonwealth legislation and are also proposed by a number of State Governments including Western Australia
- Multiple programs requiring the reporting of energy use and greenhouse gas emissions (Chevron supports the recent Commonwealth legislation aimed at providing a single reporting system which should resolve the multiple reporting issue)
- Increasing regulation aimed at specific industries or facilities. For example:
  - Chevron has observed a trend for government agencies to place conditions on particular projects mandating actions to reduce emissions without consideration for the cost of such actions, the international competitiveness of the facility or the life cycle greenhouse gas emissions intensity of that facility.
  - The Western Australia Environmental Protection Agency appears to be implementing a policy requiring LNG project proponents to either sequestrate or offset greenhouse gas emissions from the venting of reservoir carbon dioxide. This represents an additional cost burden to the LNG industry which is not applied to other projects providing more carbon intensive fuels into the same
International energy market. This is despite the recognized role of natural gas in slowing global growth in greenhouse gas emissions.

A consequence of the current policy proliferation is that:
- There appears no clear agreement on jurisdictional responsibility between the State/Territory Governments and the Commonwealth Government as to who has responsibility for regulating greenhouse gas emissions.
- Policies are implemented across multiple levels of government that are not economically efficient and do not drive abatement actions at lowest cost.

As an example of the impact of one of the current climate change policy instruments, economic modeling undertaken for the Australian oil and gas industry by the Australian Petroleum Production and Exploration Association has shown that an Australian emissions trading scheme with a 20 percent renewable energy target is significantly less efficient that an emissions trading system alone in achieving a given level of emissions abatement. In order to reduce Australia’s greenhouse emissions by 67 million tonnes by 2020 this modeling shows that a policy combining a trading scheme and 20% renewable energy target:
- costs the Australian economy $1.8 billion more in 2020 in terms of economic welfare (GNP);
- costs the Australian economy $1.5 billion more in 2020 in output (GDP);
- results in the loss of an additional 3600 full time equivalent jobs (FTE) in 2020; and
- results in electricity prices rising at least six percent more compared to an emissions trading system alone.

Australian policy makers have a clear choice. They can:
- continue to develop a plethora of overlapping and inefficient climate change policies; or
- develop a coordinated, economically efficient policy framework that will drive down greenhouse gas emissions at lowest cost to the Australia.

The Garnaut Climate Change Review has the opportunity to recommend a climate change policy framework that will address these issues by proposing jurisdictional responsibility across all levels of government and by setting criteria by which climate change policy should be considered.

Chevron proposes that Australia’s climate change policy framework should encompass the following principles:
- Climate change policy and its implementation should be determined at a national level and should, therefore, be the responsibility of the Commonwealth Government. The State and Territory Governments should focus on activities unique to their jurisdictions such as adaptation to climate change in areas such as planning and infrastructure development. Local government should continue to focus on issues such as reducing emissions from waste and building design. All levels of government should remain focused on reducing emissions from their operations and the operations of their statutory bodies.
- As its primary policy instrument, the Commonwealth should impose a nationally consistent price on emissions of greenhouse gases that is economically efficient and drives abatement at lowest cost. This policy needs to be carefully designed so that the investment climate in Australia is not harmed and Australia’s international competitiveness not disadvantaged. As a price on emissions of greenhouse gases is implemented the existing economically inefficient climate change policies should be rationalised. Once a price on greenhouse gas emissions has been established the market should be left to decide on the implementation of abatement actions. The
price on greenhouse gas emissions should be the primary tool by which industry and consumers are motivated to reduce emissions.

- Targeted support for research, demonstration and early deployment of low emissions technologies is required in order to provide the widest possible range of abatement options for the market to implement. Once technologies have been developed to the point of commercial scale deployment targeted support for that technology should be wound back with deployment dictated by the market in response to the anticipated price on greenhouse gas emissions.

Chevron’s support for a policy framework based on establishing a price on emissions of greenhouse gases is contingent on the rationalization of existing economically inefficient climate change policy instruments. We believe this position is shared by many firms within Australia.

- In considering how to impose a nationally consistent price on emissions of greenhouse gases government is faced with essentially two options; a cap and trade scheme or a tax on emissions of greenhouse gases. Both have advantages and disadvantages which will need to be considered carefully.
Design Considerations for Placing a Price on Emissions of Greenhouse Gases

Chevron understands that the Commonwealth Government supports a cap and trade scheme as a means of establishing a carbon price signal in the Australian economy, and that a key consideration in this policy proposal is the ability to drive towards consistency with similar schemes either in place or proposed throughout the world.

The Terms of Reference for the Climate Change Review do not presume any particular policy outcome. In light of the government’s previous policy statements, Chevron has developed this submission in the expectation that government will look toward a policy establishing a price on future emissions of greenhouse gases and that this policy is most likely to take the form of a cap and trade scheme.

Chevron notes that there are many issues common to the design of a cap and trade scheme and the alternative approach of a tax on greenhouse gas emissions. Many of the issues raised in this submission can be considered relevant to either a cap and trade scheme or a tax on emissions.

Chevron has identified a number of key issues critical to the development of any proposal that results in a price on emissions of greenhouse gases. These are:

- Maintaining the international competitiveness of Australian industry
- Allocation of emissions permits and free allocation versus auctioning
- Investment of revenue generated from a tax on emissions of auctioning

Maintaining the International Competitiveness of Australian Industry

Ideally all nations would place similar constraints on emissions of greenhouse gases with the result that international trade would not be influenced. This ideal is unlikely to be realised in the short to intermediate future, requiring climate change policy in Australia to be framed around the reality that some jurisdictions with which Australia competes for international trade are unlikely to implement restrictions on greenhouse gas emissions in the short to medium term. Consequently inappropriately framed climate change policy has the potential to harm Australian industry.

Chevron supports government policy which aims to:

- Ensure that Australia’s international competitiveness is not compromised by Australia’s response to climate change.
- Ensure that Australian operations of emission intensive trade exposed firms are not disadvantaged by emissions trading.

(Labor’s Plan for a Stronger Resource Sector, released on November 22, 2007)

Imposing a price signal on emissions of greenhouse gases must be done in such a way that it does not drive investment from Australia. This is of particular importance for the many companies which assess investment opportunities on a global basis. As indicated previously, Government needs to avoid implementing policies that, while reducing emissions in Australia, do so by driving investment towards overseas markets and competing products with higher life cycle emission footprints.

Chevron remains supportive of the proposal by the Prime Ministerial Task Group on Emissions Trading to include trade exposed emissions intensive industries in an emissions trading scheme but to protect their international competitiveness by the free
allocation of emissions permits. Such a proposal provides a market incentive for these industries to work to reduce emissions while, dependant upon how ‘trade exposed emissions intensive’ is defined, ensuring Australia remains a competitive investment destination.

**Allocation of Emissions Permits**

Chevron supports the proposal contained in the Prime Ministerial Task Group report on Emissions Trading that free allocation of emissions permits should be used to:

- Compensate firms that are disproportionately impacted by the introduction of an emissions trading scheme; and
- Preserve the international competitiveness of Australia’s trade exposed emissions intensive industry.

We note that how these principles are to be applied in practice will be challenging and that detailed policy is yet to be developed.

A number of commentators have argued that free allocation of emissions permits should be avoided, pointing to the collapse of the 2006 carbon price under the European Trading Scheme. Further, some commentators claim that the 2006 price collapse enabled firms covered by the scheme to make windfall profits.

However, the experience of companies in the European Union Trading Scheme is the free allocation of permits was not the cause of the May 2006 price collapse. For a cap and trade system to function it is fundamental that there are fewer emissions permits than required to cover the business as usual level of emissions. Any market based mechanism, including those where emissions permits are auctioned, will collapse if there are more permits to emit than the anticipated level of emissions. The collapse of the European Union trading price was not a result of permits being freely allocated but rather the supply of too many permits into the market.

The European experience highlights the need for high quality and accurate emissions data upon which to plan the supply of emissions permits irrespective of that supply being via auction or free allocation. This issue is being addressed by the Australian Government with the introduction of national greenhouse and energy reporting legislation. The introduction of a cap and trade scheme in Australia should occur only when verifiable, high quality data is available upon which to plan permit allocation. Chevron proposes that several years be allowed for reporting under the national greenhouse and emissions reporting system prior to the introduction of a cap and trade scheme. This will ensure that high quality data is available upon which Government can plan for the allocation of emissions permits. Attempts to rush the introduction of the scheme prior to this data being available run the risk of repeating the mistakes made in the first phase of the European Scheme.

**Auctioning vs Free Allocation**

The incentive for a firm or individual to reduce its level of greenhouse gas emissions is not driven by the price placed on its overall level of emissions, but on the marginal cost of emitting or reducing emissions.
Policies that impose a price on the overall level of an organisation’s emissions simply place an higher cost burden on that firm without providing any additional incentive to reduce emissions, compare to a scheme that only places a cost on emissions at the margin. This is illustrated using a hypothetical example in the box below.

A hypothetical small gas production operation is producing natural gas for domestic consumption. Its gas production operations result in 100,000 tonnes of greenhouse gas emissions per year. It is only possible for this firm to reduce emissions by 10,000 tonnes per year at a price below a market price of say $20 per tonne. Deeper cuts in emission have a price above the market price and therefore are not implemented.

In Scenario A, the facility receives a free allocation of emissions permits to cover 90% of its emissions. It must either purchase at auction or on market 10,000 permits to cover its remaining emissions at a prevailing market price of $20 per tonne. Its increased cost of business is $200,000 per year, a proportion of which will likely be passed through its customers (households and industry). Assuming the facility can reduce its emissions by 5000 tonnes per year at a cost of $10 per tonne, the increased cost to the facility is now $150,000, again part of which is likely to be passed through to its customers.

In Scenario B, the facility is required to purchase emissions permits to cover 100% of its emissions either on market or at auction. With a prevailing permit price of $20 per tonne this increases the cost to the business by $2 million per year. Note the price incentive to reduce emissions remains the same as in Scenario A. Again the firm has an opportunity to reduce its emissions by 5000 tonnes per year at a cost of $10 per tonne. The increased cost burden now born by the facility is $1.85 million. This represents a significant increase in costs to the facility without any extra incentive to reduce the facilities emissions. This increased cost will result in greatly increased pressure to pass the cost increase to end use consumers.

Note a tax on emissions imposes the same cost burden on a firm as that illustrated in Scenario B.

From this simplistic analysis it can be seen that a scheme incorporating a large proportion of free allocation of permits results in the same incentive to reduce emissions but at a lower increase in business costs and potential for cost pass through to consumers than does a scheme based on a high proportion of auctioning of permits as the primary allocation method.

Chevron acknowledges that a cap and trade scheme that involves free allocation of emissions permits must be carefully designed so as not to produce market distortions, but suggest that this is preferable to a scheme that results in increased business costs and pressure to pass those costs onto consumer for no apparent additional incentive to reduce emissions.

**Investment of Revenue Generated from a Tax on Emissions or From Auctioning**

A tax on emissions or a cap and trade scheme that incorporates a large proportion of emissions permits being auctioned will generate significant additional revenue for government. The ultimate economic efficiency of such policies will be determined in part by how government chooses to use this increased revenue.

Government should avoid directly compensating non trade exposed firms (apart from compensation for disproportionate value loss at commencement of a proposed trading
scheme) and individuals for increased costs attributable to the introduction of price signal on greenhouse gas emissions. Direct compensation would mitigate the economic incentive for those firms and individuals to reduce emissions.

Government could invest revenue generated from a carbon tax or cap and trade scheme into:

- Increased support for research, demonstration and early deployment of low emissions technologies
- Accelerated depreciation for capital investment in low emissions technology as is currently allowed for some environmental based expenditure.
- Reductions in company tax rates in part to assist in maintaining Australia as a competitive investment destination
- Reductions in personal income tax and increased assistance to those on low or fixed incomes.

The move to lower emissions technologies requires significant adjustments to Australia’s energy infrastructure requiring significant capital investment much of which have effective operating lives measured in decades. As a result depreciation rates can a significant impact on project economics. Accelerated depreciation for capital investment in low emissions technology would reduce the effective cost of implementing these technologies. The depreciation concession should be applied to any technology that results in low emission electrical power generation or lowering emissions from industry.

**In Closing**

The challenge of addressing the risks posed by climate change is significant. Chevron, as one of the world’s largest suppliers of energy, is committed to working with governments and the communities in which we work to help develop practical and efficient policies in response to this challenge.

We would like to thank the Garnaut Climate Change Review for the opportunity to make this submission and would be happy to meet with the review team to discuss the contents of the submission and the actions that Chevron is taking to reduce greenhouse emissions from our operations.

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