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Mr Russell Chafer
The Committee Secretary
House of Representatives Standing Committee on Industry and Resources
PO Box 6021
Parliament House
Canberra ACT 2600

"Inquiry into the development of the non-fossil fuel energy industry in Australia: Case study into selected renewable energy sectors"

TRUenergy welcomes the opportunity to comment on the *Inquiry into the development of the non-fossil fuel energy industry in Australia: Case study into selected renewable energy sectors (the Inquiry)*. TRUenergy offers comment, specifically, on the policy implications and imperatives regarding development of the non-fossil fuel energy industry (submission enclosed).

Please feel free to contact Steve Wright (Regulatory Manager, Environment) in the first instance on 03 8628 1183 regarding any aspect of this submission.

Yours Sincerely,

[signed]

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Background on TRUenergy

TRUenergy is a wholly-owned subsidiary of the CLP Group, one of the largest investor-owned power businesses in the Asia Pacific region. CLP operates an expanding range of power assets and investments with a market capitalization of US$14 billion. CLP has a broad portfolio of generation and network assets in the Asia Pacific region (the majority of which are in China and Australia). These include several very large black coal-fired and gas-fired power stations, one large nuclear power station and several smaller wind power and hydro power facilities.

CLP have adopted, voluntarily, a strategy to address climate change. The CLP strategy is to:

- assess and manage the risk of climate change and related regulations to its business;
- increase the capacity of renewable energy in its power generation portfolio to 5 per cent by 2010;
- increase its efficiency of power generation and decrease emissions in other areas of its business;
- quantify, verify and report its emissions of greenhouse gases;
- build its capabilities to use low-emitting technologies and to trade market-based instruments under frameworks such as the Kyoto Protocol;
- support the development and application of new and innovative climate-friendly energy technologies in its service areas;
- promote energy efficiency in its value chain; and
- participate in business community efforts to promote understanding of the issues and the means by which they could be addressed.

This year CLP was judged "among the best in sector" in the Carbon Leadership Index by the Carbon Disclosure Project and named "Corporate Developer of the Year" in Euromoney and Ernst & Young's Global Renewable Energy Awards 2006. In terms of its other environmental credentials, CLP is also:

- a member of the World Business Council for Sustainable Development;
- on the Focus Area Core Team for the Energy and Climate project; and
- one of eight members conducting the Electric Utilities project.

CLP's Australian assets, the Yallourn power station (and mine) and Auspower the commercial and industrial energy retailer, were merged with the TXU merchant energy business acquired by CLP in May 2005. The result of this merger was the creation of a new business and brand, TRUenergy.

TRUenergy has a diverse portfolio of generation assets ranging from: 1480MW of brown coal-fired generation capacity (Yallourn); 1280MW of natural gas-fired generation capacity (Torrens Island) and a further 400MW of committed generation capacity from the most efficient combined cycle gas-fired generation technology available, due for completion in

2008/09 (Tallawarra); and via CLP, a 50 per cent equity share in Woolnorth Bluff Point wind farm in Tasmania (65MW) and a 25 per cent share in the Cathedral Rocks wind farm in South Australia (66MW)(the Roaring 40s joint venture).

TRUenergy also owns a gas storage facility in South West Victoria (supplying up to 320TJ per day) and one third of the Melbourne to Adelaide pipeline (SEAgas). In addition TRUenergy services a significant load of residential and industrial and commercial energy customers in Victoria, South Australia, New South Wales, Queensland and the Australian Capital Territory (a total of 1.1 million).

TRUenergy offers environmentally friendly energy products to its customers and is lowering the emission intensity of its portfolio by striving to make its current generation assets as environmentally efficient as possible. TRUenergy is a signatory to the esaa's Code of Sustainable Practice.

Looking forward, TRUenergy has a solid commitment to, and focus on, investing in lower emission generation assets. Its parentage affords it access to invaluable expertise from a world leader in environmental management in the power sector and the potential to directly impact climate change outcomes in China and India as well as Australia.

TRUenergy climate change policy position

In TRUenergy's view policy inaction by governments to arrest business-as-usual global emissions growth is simply untenable. The weight of recent scientific evidence supports the existence of dangerous levels of climate change, and, a compelling economic case has been made for global policy action to mitigate these impacts. There is growing consensus that the only rational and responsible global policy goal is stabilization and reduction of the atmospheric concentration of global emissions well before the end of the century.

It is TRUenergy's strong contention that Australia adopts a leadership role in the 'incremental' formation of a global framework by first establishing a domestic climate change policy framework as soon as practicable. A well designed national emissions trading scheme is the center piece of an effective, efficient climate change policy framework. Such a framework would deliver:

- investor certainty ex ante – by creating an explicit, market-based price of carbon across all sectors of the economy to determine the new entrant mix of energy generation and abatement technologies;
- investor certainty ex post – by adopting a compensation methodology that preserves the existing asset values of those most adversely affected by the introduction of a carbon charge;
- strong incentives for research and development – by allocating public funds to the development of low-emission technologies with the greatest potential to reduce emissions at least cost in the long run.

There is no doubt that acting unilaterally poses a significant challenge for Australia's governments, industries and consumers. The Australian economy requires substantial new energy infrastructure investment over the next 50 years to satisfy energy demand growth. It is imperative to the maintenance of Australia's competitive advantage, and economic prosperity generally, that the domestic policy framework delivers greater development and deployment of low/zero emission fossil-fuel based generation technology to satisfy energy demand growth. It is also important that the entire economy is effectively covered by the policy framework (as opposed to only the stationary energy sector). Governments will also need to address the socio-economic impacts the inevitable increases in energy prices.

In tandem with the establishment of a domestic policy framework, the Australian Government ought to marshal its policy-making resources and international leverage to drive the formation of an effective global climate change policy framework. The linking of a domestic emissions trading scheme (and complimentary research and development efforts) to the global framework, as it develops incrementally, is critical to achieving meaningful, least cost emission reductions in the long run.

An integrated approach to industry development policy

Development of the non-fossil fuel energy industry in Australia is an important part of the national climate change policy response. Government policy, designed to foster this development, is best considered as part and parcel of a comprehensive climate change policy framework. Formulation of industry development policy, in isolation of other

elements of climate change policy, is likely to result in ineffective and inefficient outcomes for the industry and the community over the long term. As stated by the Productivity Commission:

> "It is sometimes argued that climate change is such a large and complex problem that there can be no 'silver bullet' solution and so a wide range of approaches is needed. This has some validity when applied to the technologies that may be required to reduce emissions. However, the same argument should not be applied to policy". [1]

It is imperative that the various policy elements required to address climate change be coordinated under a single, comprehensive climate change policy framework designed to achieve the specific policy goal of emissions reduction and stabilisation at least cost.

An efficient and effective policy framework

An efficient and effective policy framework is designed to addresses key sources of market failure pertinent to the policy problem. The sources of market failure relevant to climate change are, 1. 'negative externality' and 2. 'information good'.[2] As far as the industry's development is concerned:

1. a price for energy that does not reflect its environmental damage, fails to reflect the environmental benefit of zero/low emission technologies over emission intensive technologies (distorting energy consumption and investment decisions away from the former).
2. the inability of innovators of zero/low emission technologies to fully recoup the costs of risky, knowledge intensive R&D and commercialisation activity reduces the incentive for investment in the industry (and reduces potential 'spillover'[3] benefits available).

Clearly judicious policy intervention is required to deliver a level of industry development sufficient to contribute to the achievement of the policy goal optimally. However, if development policy is not predicated on rectifying market failure(s), the community's interests are unlikely to be forwarded by the policy intervention (even if the industry itself benefits). This would amount to government failure – a condition where the policy goal is pursued at a level above least cost (all environmental and economic factors considered).

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[1] Productivity Commission (2007), *Submission to the Prime Ministerial Task Group on Emissions Trading*, March 2007, p.44.

[2] Market failure relevant to climate change relates to two distinct manifestations of a public good (the atmosphere):

- *negative externality* – if the environmental cost of carbon is not factored into investment and consumption decisions relating to carbon intensive goods and services, incentive to conserve and protect the atmosphere it is virtually non-existent. In short, if carbon emissions remain unpriced society will consume excessive levels of emission intensive goods and services.
- *information good* – if innovators of new technologies are unable to prevent imitation for a sustained period of time they will not be able to recover sunk costs. The final rewards do not reflect the full costs (risks) of the investment because the price being charged is driven down to cover variable costs only. In short, if the costs of investing in new technologies are not fully recoverable society will under-invest in low emission technologies.

[3] 'Spillovers' are returns to investment in knowledge that flow to other parties and cannot be recouped by the innovator/investor. See Arrow, K. 1962, *Economic welfare and the allocation of resources for invention*, in N. Rosenberg (ed.), *The economics of technological change* (1971).

A price on carbon is important but not sufficient

An explicit price on carbon, best created via a national emissions trading scheme, addresses the 'negative externality' directly; and goes some of the way to ameliorating 'information good' problem.[4] The introduction of a price on carbon improves the investment economics of all zero/low emission technologies (existing and potential) relative to competing emission intensive technologies:

- As the price of carbon increases existing zero/low emission technologies are progressively dispatched into the energy market, displacing emission intensive competitors at the margin and expanding the size of the industry (enabling further cost advantages to the extent that scale economies exist for various technologies).
- As the price of carbon increases, *ex-ante* returns to innovators of potential zero/low emission technologies also increase, encouraging greater investment in typically risky R&D and commercialisation activity (and therefore greater spill-over benefits for the industry and the economy).

However, a price on carbon is unlikely to overcome both sources of market failure adequately.[5] This is because sunk costs associated with R&D and commercialisation are unlikely to be recoupable via a price on carbon alone, as opposed to the variable costs of deploying existing technologies, which a price on carbon compensates for directly. This is so for at least 3 reasons:

- political resistance – the imposition of very high carbon charges would have to be agreed to and announced well in advanced of deployment and actual emissions reductions (which separates the political 'pain' from the potential reward by decades);
- sovereign risk – investors face significant sovereign risk when attempting to make risky investments on the back of governments' long term promises and would discount their value (even if such promises were actually made by governments); and
- dynamic inconsistency – even if governments could tolerate imposing high carbon charges politically there is a strong incentive for governments to renege on long term promises, and lower the carbon charge, after the technology has been developed (and the investment sunk) because only variable costs would require a subsidy post development, to ensure deployment (and emission reductions).

In the absence of a 'perfect' system of property rights the level of investment in R&D and commercialisation activities will be lower than optimal even with a price on carbon.[6]

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[4] The efficiency and effectiveness of a national emissions trading scheme has been well established by the Jurisdictions' National Emissions Trading Taskforce's Discussion Paper, "*Possible Design for a National Greenhouse Gas Emissions Trading Scheme*" (2006); and by the Prime Ministerial Task Group on Emissions Trading Report, "*Report of the Task Group on Emissions Trading*" (2007).

[5] See Montgomery, W. & Smith, A (2005), "*Price, Quantity, and Technology Strategies for Climate Change Policy*", CRA International, Washington DC.

[6] A theoretically perfect system of property rights would afford innovators full protection over their knowledge and therefore the ability to appropriate all of the gains (including spillover benefits) thereby compensating them for the sunk costs of R&D and commercialisation. Innovators would have the incentive to invest in the optimal amount of knowledge creation (to reflect its full benefits to the community).

Support for research, development and commercialisation is required

Government support for zero/low emission technologies can lower the total cost of achieving the policy goal (all environmental and economic factors considered). There are two channels via which government policy can induce technological change (ITC):

- The stimulation of greater investment in R&D leads to discovery of environmentally efficient technologies at lower cost – direct government funding of R&D, for example, effectively subsidizes the sunk cost component of investment, allowing a greater proportion of innovators' total costs to be recouped post deployment; and
- The stimulation of greater commercialisation and 'learning-by-doing' leads to discovery of ways to further reduce the costs of new technology – mandatory deployment targets, for example, effectively subsidise the cost of commercialising new technologies, allowing a greater proportion of innovators' total costs to be recouped post deployment.

Note, that both these channels of ITC are warranted on market failure grounds because innovators of zero/low emission technologies are unable to recoup the subsidised cost in the market place (due to the information good characteristics of R&D and commercialisation). Numerous studies attest to the importance (and evidence) of both R&D and learning-by-doing in reducing energy technology-related areas.[7] To be optimal, government support for zero/low emission technologies ought to be designed to target these channels specifically.

Conclusion

If new technologies with lower cost structures are not discovered going forward (or if this process occurs too slowly) the 'dynamic' efficiency and effectiveness of the climate change policy response will be lower and total costs to the community, higher. Moreover the community is less likely to sustain support for policy framework that does not adhere to least cost outcomes, which is particularly important for a policy issue likely to span decades.[8]

While it is impossible to predict with certainty what will be the least-cost mix of zero/low emission technologies over time, certainty around the policy framework can and ought be established as soon as practicable, to ensure the conditions necessary for the market to determine the least cost mix. Appropriate development of the industry (and the various technology sectors within it) is a function of an efficient and effective policy framework – one that fundamentally targets market failure.

[7] See Goulder, L., (Standford University)(October 2004), *Economics - Induced technological change and climate policy*, prepared for the Pew Center on Global Climate Change.

[8] Productivity Commission (2007), *Submission to the Prime Ministerial Task Group on Emissions Trading*, March 2007.