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**CEEM Submission to the Garnaut Review  
*Emissions Trading Scheme Discussion  
Paper***

Iain MacGill  
Regina Betz

**April 2008**

**About CEEM:**

The UNSW Centre for Energy and Environmental Markets (CEEM) undertakes interdisciplinary research in the design, analysis and performance monitoring of energy and environmental markets and their associated policy frameworks. CEEM brings together UNSW researchers from the Australian School of Business, the Faculty of Engineering, the Institute of Environmental Studies, and the Faculty of Arts and Social Sciences, working alongside a growing number of international partners. Its research areas include the design of spot, ancillary and forward electricity markets, market-based environmental regulation and the broader policy context in which all these markets operate. You can learn more of CEEM's work by visiting its website: [www.ceem.unsw.edu.au](http://www.ceem.unsw.edu.au).

**About this submission:**

Emissions Trading Scheme analysis and design represents one of the main research areas within CEEM. Over the last five years work has included detailed analysis of the NSW Greenhouse Gas Reduction Scheme (GGAS) and the European Union Emissions Trading Schemes Emissions Trading Schemes (EU ETS). Some fifty papers and presentations on emissions trading over this period can be found on the CEEM website. We also run regular industry short courses and undertake consulting in this area. This brief submission draws upon some of the key findings of this work that are relevant to the issues raised in the Garnaut Review ETS Discussion Paper.

This is an area of ongoing work for CEEM and we welcome feedback and comments. The corresponding authors for this submission are:

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## Summary

Formal discussions on emissions trading in Australia go back at least as far as the series of discussion papers released by the Australian Greenhouse Office in 1999. In many ways, these still represent the most thoughtful discussion of such a policy approach in the Australian context. For example, these reports provide a far more balanced discussion of allocation methods than the State and Territory Governments National Emissions Trading Taskforce (NETT) work and the previous Federal Government's joint Government-business Task Group on Emissions Trading (TGET) report released some eight years later. The Federal Government commitment to introduce an ETS in 2010 is well overdue and represents a lost decade.<sup>1</sup>

The Garnaut Review ETS Discussion Paper, henceforth referred to as the Garnaut Paper, is in most regards a welcome improvement on the NETT and TGET work, which both seem to represent significant governance failures in policy development. In particular, their support for free up-front allocations to emitters on the basis of some abstracted modeling of 'disproportionate losses' is near indefensible in terms of good policy, and perhaps legally indefensible as well.<sup>2</sup>

In our view the Garnaut Paper has particular strengths in:

- taking discussion beyond the modest emissions trajectories (including a period of increasing emissions and associated low carbon prices) implicit in the NETT and TGET work. The proposed strategies for tightening trajectories according to progress in international policy developments also have merit.
- its identification of the key role of credible institutional arrangements in all aspects of an ETS.
- Its strong advocacy for 100% auction of permits. If anything the Garnaut Paper appears to understate the case against so-called compensation for large emitters. The ETS represents the removal of a public subsidy that emitters have knowingly been receiving for at least a decade. In this regard, emitters might reasonably be asked to 'return' some of the subsidy that they have been receiving for the last decade, particularly to the extent they played a role in delaying effective action. This delay has made Australia's challenge in reducing emissions harder and more expensive than it need have been. Furthermore, arguments that introducing an ETS without such compensation will adversely impact investor confidence in Australian governance have the matter the wrong way around. Over the past decade, some investors have made the judgment that climate change was a problem and that part of the solution would be a "polluter pays" price on carbon. These investors will have changed their portfolio holdings and price expectations for shares in large emitters accordingly. Presumably some other investors have made the judgment that climate change wasn't a problem or, worse, that government would abandon principles of good governance and compensate them. Paying compensation to large emitters therefore effectively penalizes investors who assumed good governance while rewarding those who took a bet against it – a very poor signal to be sending investors. Such so-called compensation would have wider governance impacts as other stakeholders realize that if you're not at the table in Canberra then you're probably on the menu. Even more broadly the transition to a low carbon future will require considerable social consensus and few things are more damaging to this than poor governance rewarding a favored few. Widespread cynicism and an unwillingness to accept shared sacrifice is a likely outcome. Low income households and impacted communities have a far better case for compensation as they are demonstrably unable to 'pass on' the impacts of increased energy prices and regional transitions.
- Support for driving compliance through both penalties and make-good provisions, rather than the use of price caps that threaten the environmental integrity of the scheme.

<sup>1</sup> Note that the Review Report incorrectly states that Australia was home to one of the world's first ETS with the NSW Greenhouse Gas Reduction Scheme. This scheme does not involve emissions trading but, instead, imputed 'emissions reductions' trading. The difference is material – emissions are physically measurable while 'emission reductions' inherently require an abstracted counter-factual assessment of Business-As-Usual emissions against which reductions are claimed.

<sup>2</sup> The simpler administrative allocations made by countries in the EU ETS saw thousands of legal actions.



However, the Garnaut paper would seem to have some significant limitations including:

- its failure to reflect the urgency of action on climate change in its ETS recommendations. The Garnaut Review's Interim Report notes the risks of dangerous warming even with stabilization at 450 ppmCO<sub>2</sub>-e and modeling suggesting that meeting this target may well require global emissions to peak around 2010, fall to 2000 levels soon after 2020 and then fall to less than half those levels by 2050.<sup>3</sup> Given that Australia has amongst the world's highest per capita wealth and per-capita greenhouse emissions double the average in the *developed* world, any national ETS consistent with such global emissions reductions must drive sharp and severe changes almost immediately.
- the limited role it appears to see for other policy measures in a coherent and effective energy and climate policy framework. An ETS is effective only to the extent it changes decision making in areas of economic activity that drive physical greenhouse emissions. A wide range of market failures can be seen in some of these key areas including, in particular, the energy sector. Pricing carbon will not resolve all of these failures. Furthermore, such pricing might be expected to experience some delays in driving action. Policies in priority areas including energy efficiency, energy market design, renewable energy and infrastructure development should not be seen only as complementary, but as having a key role in their own right.
- Insufficient attention to the evident governance challenges in implementing effective ETS schemes. Key major countries within the EU are widely considered to have some of the world's best led and run governments. Unfortunately, the EU ETS has proved a near debacle in its first phase delivering few if any emissions reductions while generating extremely large windfall profits for major emitters.<sup>4</sup> Does this result from the complexity and novelty of such a policy approach, an unfortunate set of circumstances or, instead, major underlying governance challenges due to the inherent complexity and lack of transparency with ETS? If it is the latter we should be pursuing policies that may offer lower theoretical efficiency but have greater robustness in policy development. The NETT and TGET work is concerning in this regard.
- Likely overreach in terms of ETS coverage through its support for immediate inclusion of sectors with poor measurability including waste and fugitive emissions, and what is effectively the immediate partial inclusion of agriculture and forestry through unlimited domestic offsets. The Australian emissions inventory reported in 2005 has emission uncertainty ranges for agriculture of 10-80% and LULUCF of 20-60%.<sup>5</sup> Inclusion of all these sectors within an ETS creates a market where, for example, physical and directly measurable emissions arising from fossil fuel combustion are assumed to be completely fungible with imputed changes in net carbon flow from particular land-use activities. One represents the release of carbon safely sequestered away from the atmosphere for millions of years; the other some estimated change in ongoing flows of carbon between the atmosphere and the biosphere for a given project – flows that are subject to sudden reversal due to fire or drought. The inclusion of offset projects also has implications for achieving emission reductions in non-covered sectors as offset emission reductions merely reduce the target for covered sectors.
- Insufficient attention to the inherent complexity of an ETS and the need for integrated design. The Garnaut Paper identifies simplicity as a key design principle but proposes wide coverage, unlimited offsets and complex borrowing arrangements that all seem to add complexity for limited benefit. Furthermore, many key design choices in an ETS have complex linkages so that a minor change in, for example, offset project eligibility might have a marked impact on actual emissions reductions because of non-additionality, efficiency because of price distortions and equity due to windfall profits. Picking and choosing amongst design options for different scheme elements is unlikely to deliver an effective, integrated scheme.

The rest of this submission largely follows the structure of the Garnaut Paper and expands on of these points.

<sup>3</sup> Garnaut Climate Change Review, *Interim Report to the Commonwealth, State and Territory Governments*, February 2008.

<sup>4</sup> Betz and Sato, "Emissions trading: lessons learnt from the 1st phase of the EU ETS and prospects for the 2nd phase," *Climate Policy*, Vol. 6, pp351-359, 2006.

<sup>5</sup> Australian Government, *Fourth Communication to the UNFCCC*, 2005.



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## Framework to guide ETS design

In our view a well designed ETS can play an important climate policy role within a coherent and comprehensive policy mix of regulatory, financial and information policies. There is still some uncertainty as to the best approaches for financial incentives including the establishment of a carbon price. It would have been helpful for the Review Report to clearly state why it “endorses, as the NETT and the TGET did, the creation of an ETS as the most efficient means by which to achieve the mitigation required as compared to other market instruments such as a carbon tax.”

This endorsement clearly can't be based on experience to date with ETS – the only scheme of any scale at present is that of the EU and it has demonstrated low effectiveness, efficiency and equity outcomes in its first three year phase.

There has been considerable discussion of some poor design choices made in that scheme yet, seemingly, insufficient consideration of why these choices arose. Was it primarily a lack of understanding by policy makers due to the novel nature and inherent complexity of this mechanism? If, instead, it represents a failure of governance in delivering an appropriate scheme design, does this reflect a particular set of unfortunate circumstances, or an inherent weakness in such mechanisms because of their high levels of complexity. If so, are other approaches such as carbon tax or regulation more robust to governance challenges?

Such a discussion would be particularly useful in determining whether an ETS design process is becoming so compromised that it would be better to abandon this approach in favour of approaches that might offer lower theoretical efficiency but greater robustness for policy development.

The experience of the EU ETS has highlighted how such schemes can compromise good policy outcomes for years. For example, one estimate of EU ETS performance in its current five year second phase suggests windfall profits – the majority going to large polluters – of perhaps €150billion to achieve around 150mtCO<sub>2</sub> of reductions from 2005 emission levels.<sup>6</sup> This represents the order of €1000/tCO<sub>2</sub> in windfall profits, let alone the costs of actually reducing emissions. That cashflow could clearly have been better spent on driving emission reductions.

### **The objective of an ETS**

The stated objective of an ETS within the Garnaut Paper seems excessively technical and efficiency focused and doesn't consider broader measures of performance by which a proposed design needs to be assessed – effectiveness, efficiency and equity. An ETS only has value in its ability to drive changes in the decision making governing activities associated with physical emissions.

The *effectiveness* of ETS has to be assessed in terms of its potential contribution to reductions in physical emissions within covered sectors consistent with Australian obligations as part of an international agreement to avert dangerous global warming.

The *efficiency* of an ETS in achieving such reductions will depend on whether the lowest cost abatement options are taken up and associated transaction costs incurred by market participants. The scale of the emission reduction challenges that we face means that the most critical efficiency relates to driving investment rather than operational decision making. This requires liquid and credible forward markets to emerge, and this will hinge in large part on market participant expectations of the quality of governance. Compromised decision making early in the design process will almost certainly reduce expectations in the capabilities of government to deliver an effective scheme and damage investment decision making.

<sup>6</sup> Matthes, “Australia's Greenhouse Emissions trading Scheme: What Can we learn from Europe?,” *CEEM Seminar*, Sydney, March 2008.

Finally, an effective response to climate change will require societal transformation and hence any ETS implementation must contribute to establishing and maintaining social consensus. An ETS must likely be fair, and be seen to be fair, if such consensus is to be achieved.

### ***Principles to guide the design of an ETS***

The stated principles to guide design of the ETS are reasonable but raise significant challenges that aren't adequately addressed in the Paper.

*Scarcity* of permits is clearly essential, however, the use as domestic offsets and possible international linkages with other countries in the region such as the inclusion of Avoided Deforestation within PNG may throw such considerable doubt on how much scarcity exists. Targets that are formally linked to coverage, offsets and international linkages may assist here.

*Tradeability* is also certainly required, however, effective markets require that what is being traded is fungible – that is, freely interchangeable with another in satisfying an obligation. Physical and directly measurable emissions arising from fossil fuel combustion are not fungible with imputed changes in net carbon flow from particular land-use activities in terms of avoiding climate change. One represents the release of carbon safely sequestered away from the atmosphere for millions of years; the other some estimated change in ongoing flows of carbon between the atmosphere and the biosphere – flows that are subject to sudden reversal due to fire or drought.

*Credibility* is vital, however, it goes beyond that of direct market participants. Were the public to decide that an ETS was inequitable and went against environmental principles such as 'polluter pays' then the scheme is also put at risk.

*Simplicity* is essential, yet seems to be put at risk by the inclusion of poorly measurable sectors, unlimited offsets and complex borrowing arrangements as proposed in the Report.

*Integration with other markets* is, indeed, the whole point of emissions trading. The carbon market's performance will be determined, in the end, only by the effectiveness, efficiency and equity it demonstrates in driving changes in our markets governing decision making in activities that create the physical emissions. However, some key markets in this regard such as energy markets are at risk of almost every form of potential market failure; from their wide range of externalities of which climate change is only one, role in providing essential public goods, generally concentrated supply side, information failures such as seen with underutilized energy efficiency options and inherent incompleteness due to the high levels of coordination required in infrastructure. It is not enough, as the Report suggests, to "...use the opportunities and insights gained from establishing an ETS to identify and correct distortions in other markets." These distortions are long standing, complex and in some regards inevitable – far more thought needs to be given of what changes are required to support an ETS, and for an ETS to support them.

### ***Intrinsic and extrinsic design features of an ETS***

While it is obviously helpful to try and establish a separation between intrinsic and extrinsic design questions for an ETS it is not clear that such a separation can actually be achieved.

Almost every design question in an ETS is linked to other design issues – for example, decisions on coverage and offsets should depend on policy options for sectors that might or might not be covered. Similarly permit issuance hardly seems separable from compensation.

# An Australian ETS

## Establishing the emissions limit

The Report makes an important point about the importance of cumulative emissions rather than single year targets with respect to climate change. It does, however, seem to oversimplify the issue. The timing of emission reductions is critical in at least three regards – the potential rate of change of warming over the coming decades, managing the risk that our improved scientific understanding over time will reveal the need for earlier and larger reductions, and in supporting international policy developments through demonstration of our willingness and capability to act. All of these issues highlight the value of early emission reductions.

## Trajectories

The report could better highlight that these trajectories are not for emissions, but for allowable maximum emissions; that is, they represent a frontier of maximum allowable emissions in a year rather than a desired or targeted level of emissions. Risk management strategies by participants that involve early investment in abatement should be supported by the scheme design through banking, not confused through opportunities for borrowing. Note also that the inclusion of offsets and international linkages will impact on the physical meaning of a trajectory cap with respect to covered sectors. Trajectory settings should be formally linked to these design decisions.

The multiple trajectories approach proposed in the Report has considerable merit. Given the implicit 'hot air' in the Australian Kyoto target due to inclusion of land-clearing, considerable inventory uncertainty and the significant growth in energy related emissions since 1990 an appropriate target to 2012 should involve reductions below the formal 108% target. It is not clear why Trajectory B should be set according to the average of other developed countries based on existing commitments. Our per-capita emissions are double the developed world average and we should be taking a leadership role. It is also not clear why "there seems no case for adjusting budgets and trajectories for new information and developments of an economic or scientific time." Australia taking a greater leadership role should always be an option.

## Coverage

The Report notes that emission are already reported for stationary energy, transport, fugitive emissions from fuels, industrial processes, agriculture, waste and LUCF. Note that the emissions uncertainty in these sectors, however, varies greatly as shown in figure 1.

Uncertainty in the emissions estimates for each sector or subsector can be summarised as follows:

- Stationary Energy and Transport—less than 10% for estimates of CO<sub>2</sub> and more than 20% for other gases
- Fugitive Emissions from Fuels—5–20%
- Industrial Processes—10–30%
- Agriculture—10–more than 80%
- Land Use, Land Use Change and Forestry—20–60%
- Waste—50%.

The estimated uncertainty surrounding the aggregate inventory estimate for 2003 is  $\pm 5\%$ .

*Figure 1. Estimated Inventory uncertainties for different economic sectors from the Australian Government Fourth Communication to the UNFCCC, 2005.*



This uncertainty has important implications for sectors other than Agriculture and LULUCF and the Report's statement that "Emissions from stationary energy, transport, waste and industrial processes can be accurately measured or estimated at reasonable cost and should be covered by an Australian ETS" needs to be better supported.

More generally, it is important to distinguish how governments implementing good governance might manage such uncertainties in comparison to how companies pursuing profit maximization will do so. Far greater robustness is likely to be required.

### ***Domestic offsets***

It is unclear in our view why sectors that can't currently be covered within the scheme due to measurement challenges should still be eligible for inclusion as offset projects. As a general rule, you shouldn't trade what you can't measure with what you can measure. Furthermore, tests of additionality may be arbitrary with respect to the particular tests chosen, however, they are also essential to ensure the environmental effectiveness of such offset projects. We would agree that there is an urgent need for policies that support emissions reductions in the LULUCF and agricultural sectors but don't believe that their inclusion in an ETS is the most appropriate approach for providing such support.

### ***Auctioning or free allocation***

As the paper has pointed out there are several compelling reasons why there should be no free allocation of permits. The experience of Phase One of the European Union's ETS has demonstrated the extent to which freely allocating permits to firms with the capacity to pass through their costs to consumers generates large windfall profits. This violates the principle that the polluter should pay for reducing its adverse environmental impact and undermines the integrity of an Emissions Trading Scheme.

We strongly support the Review's proposal that all permits be auctioned. Indeed, the report would seem to understate the case in claiming that it is primarily an equity issue and that price impacts will be independent of allocation. There is a growing body of research highlighting the potential efficiency losses of free allocation. It can, for example, impact on price discovery by the market because it effectively establishes two prices on emissions – an initial \$0/tCO<sub>2</sub>-e for those favored with free allocations and then a separate 'market' price that emerges from participant trading. Participants will naturally focus more on which of these two prices they will have to pay up front, rather than on their emissions reduction options from which an effective market price should emerge.

Although the Paper notes that auctions help deliver permits to highest value users, other efficiency arguments should be kept in mind when arguing the allocation issue. For instance, some free allocation methods could artificially increase emissions if current emission levels impact upon the expected allocation in the following period. Moreover, the potential for generating windfall profits from obtaining a favourable allocation creates perverse incentives for costly and wasteful rent seeking behaviour by business.

Furthermore, auctioning is likely to improve the efficiency of the ETS by providing a clear and regular incentive for all participants (including small emitters) to gather information on their marginal abatement costs in order to determine an efficient bidding strategy. The aggregate result of this behaviour is not only a more efficient primary allocation coming from the auction, but a superior information base to guide participation and trading in the secondary market.

A well designed auction of 100% of permits therefore has significant advantages both in terms of efficiency and distribution. It also comes with the additional benefits of transparency, simplicity, fairness and if designed properly the assurance of a timely supply of permits to the market at regular intervals which is important for new comers.

With respect to auctioning it is worth noting that the benefits of an auction depend crucially on that auction being well-designed. In order to prevent perceptions of unfairness, lack of transparency, prohibitive complexity (especially for smaller market participants) and to prevent market power and gaming behaviour from undermining the integrity of the allocation mechanism and, by extension, of the ETS, due diligence and caution must be shown to the auction type and its specific design features. Experimental testing of the auction design is therefore recommended.

### ***International links***

The potential efficiency advantages of linkages need to be weighed against the complexities involved. Links with New Zealand will be problematic due to the unusual design that has been chosen there, and should also depend on their final decisions on the inclusion of 'hot air' from the former Soviet Union.<sup>7</sup> Links with PNG and Indonesia might be desirable for a range of reasons, however, the governance challenges are extraordinary. Even apparently well led and run governments such as those in the EU and Australia has struggled with governance for ETS. Links with the EU could be highly valuable and the EU views on excluding forestry and agriculture are reasonable given measurability challenges.

We support the Garnaut paper in its view that CDM should be limited (quantitatively) and would argue for similar limits to apply to JI, in order to reflect the complementarity requirements of the Kyoto Protocol and to avoid the potential transfer of large amounts of 'hot air' through the option of "declaring them as Emissions Reduction Units (ERUs).

### ***Price ceilings and floors***

We agree that there is little case to be made for providing a price cap as it would threaten the environmental effectiveness of the scheme. A significant penalty and make-good provisions are a better approach so that non-complying parties can buy themselves time, but can't buy their way out of meeting their obligations.

### ***Inter-temporality***

In the Discussion Paper there was (understandably) a lack of clarity and detail related to the borrowing mechanism. Our understanding is that the Paper suggests annual permits which are date stamped and which can be banked. The Independent Carbon Bank is allowed to lend permits of future vintages to credit-worthy borrowers and would apply an interest rate to cover risk and costs.

Nevertheless, from reading the Discussion Papers' discussion on Inter-temporality (Section 3.7) some specific questions which arise are:

- When would the Independent Carbon Bank decide to lend permits? Does this depend on the price of the spot market? Will this be only at the end of the period when companies realised that they are missing permits or will this option be available all the time to credit-worthy borrowers?
- What would be the allocation mechanism for borrowed permits? Would it be an auction as well, consistent with the Review's expressed preference for auctioning or would the permits be credited to an account of a credit-worthy account holder and they will need to repay those permits in the next period at what price (spot price next year + interest)?
- Since uncertainty about credit-worthiness might lead to risk-averse participants purchasing at higher prices rather than borrowing, where borrowing would have been a rational decision,

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<sup>7</sup> Following the reconstruction process in the Former Soviet Union those countries hold excess permits in the range of 7 billion tonnes representing double the amount Australia has been assigned to emit in 2008-2012 under the Kyoto Protocol. If New Zealand companies were allowed to buy those "hot air" permits without limit and Australia's ETS was linked to NZ, both systems would probably not achieve to reduce global greenhouse gas emissions significantly.

how transparent, simple and far in advance will a potentially interested borrower know her credit-worthiness and ability to borrow?

- How will the uncertainty and therefore the risk of being refused an option to borrow be mitigated by the authority administering the borrowing of permits e.g. by clear and consistent rules, determination of credit status well in advance, etc.?
- How does the Review envision handling with the potential for market gaming and perceptions of unfairness which such a system could create? Consider the following possibility. By allowing only credit-worthy borrowers to borrow a risk will exist that credit-worthy borrowers could profit from short-squeezing the non-credit-worthy section of the market provided that the expected repayment price is lower than the prevailing market price at the time of borrowing. The potential size of such profits could be larger where the proportion of credit worthy borrowers to non-credit worthy borrowers is small and the difference between the prevailing market price and the expected repayment price for borrowed permits at that time is large.

With the lack of understanding the borrowing mechanism seems complex and it is questionable if such a mechanism can be argued to be in line with the principle of simplicity which is stressed by the Paper. In addition, such complicated regulations seem to be rather unnecessary given that linking to the international market of Clean Development Mechanism and Joint Implementation as well as other national trading schemes is envisaged. If it really seems necessary there are simpler approaches such as allowing a specified percentage of permits of next year vintages (which are already bought at an advance auction) to be used for compliance. Since borrowing has never been used in other ETS, to the authors knowledge, it is recommended to test the outcome experimentally before proceeding with this approach.

### ***Avoiding distortion in trade-exposed, emission-intensive industries***

The risks of a material misallocation of resources around the world from an Australian carbon price in the absence of a similar price in key competing nations certainly exist but appear overstated in the Paper. Some existing TEEI industry in Australia represents just such a misallocation because of subsidized energy costs. For example, subsidies for Aluminum smelters in Australia have previously been estimated to be in the order of A\$200-250m/year.<sup>8</sup>

Furthermore, some Australian TEEI production is associated with amongst the world's highest greenhouse emissions due to our coal-dominated electricity supply. Investment in Aluminum smelters already appears to be moving to countries with low cost electricity that has considerably lower associated emissions than that in Australia; for example, gas-fired generation in the Middle East and Africa. Despite the absence of an explicit carbon price in such countries, they would certainly seem to be more appropriate locations for smelters than Australia in a future carbon constrained world.

We agree that any compensation should be undertaken on the basis of objective contemporary evidence (ex-post) provided to an independent authority with information discovery powers, and strongly prefer the use of cash payments rather than permits to enhance transparency and avoid developing any free allocation formula, thus leaving 100% of the permits to be auctioned.

### ***Governance:***

As noted in our introductory comments, experience with ETS around the world to date has highlighted the governance challenges involved in establishing effective schemes. It has not yet been demonstrated that governments are capable of such governance.

The proposed arrangements could be improved by formally including arrangements for rule changes. A possible example is that provided by the Australian National Electricity Market which

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<sup>8</sup> Australia Institute, *The Aluminium Smelting Industry - Structure, market power, subsidies and greenhouse gas emissions*. Australia Institute Report. Canberra, 2002.

has separate policy making (MCE), rule making (AEMC) and regulatory (AER) bodies, and detailed formal processes for making rule changes.

Governance arrangements will also require regular formal independent review of ETS performance and high transparency so that other interested stakeholders are able to undertake their own assessments.

### ***Penalties and make-good provisions***

We support the Report in recommending a significant financial penalty and make-good provisions be applied.

## *Impacts on economic activity and income distribution*

### ***The case for stationary energy***

The Report highlights some of the limitations of the many and growing number of studies purporting to assess the impact of carbon pricing on restructuring of the stationary energy sector. They are critically dependent on estimated and forecast costs for a wide range of technologies, assumptions regarding market operation and assumed responses of demand to higher energy prices. These provisos apply more generally to modeling in climate and energy and are therefore relevant to the Review's intention to undertake considerable future modeling for its final report. What can such modeling reasonably be expected to contribute, and how will its results be used?

### ***Interaction with MRET***

MRET does appear to have demonstrated potential effectiveness of market-based instruments to drive action. Note, however, that the renewable energy targets to date have been modest by international standards, although this is about to change. Also, a number of design problems have been identified that have reduced its effectiveness, efficiency and equity. Interestingly, there are some interesting examples of governance failures such as the surprising decision to include old hydro within the Scheme. Also, similar renewable target approaches in other countries such as the UK have not necessarily achieved equivalent success, highlighting the key role of good design and an appropriate surrounding policy context in achieving good outcomes.

### ***Existing generation supply***

It is difficult to estimate the outcomes of ETS on this sector, even with a view of what carbon price will emerge. Bidding in this market by many generators reflects some mix of unit commitment decisions (negative price bids to ensure the plant is dispatched), SRMC bids for much of the rest of plant capacity and perhaps opportunistic high price bids for periods of unexpectedly high demand. The impact of a given carbon price is therefore not straightforward to assess.

It is likely that higher carbon prices will be required to markedly change the merit order of operational dispatch than to shift investment towards gas-fired generation due to the lower capital costs of CCGT plant, and recent cost increases in conventional coal-fired plant.

Gas availability for the NEM in the longer-term is an issue of considerable controversy. So are the potential impacts of mooted LNG facilities on the East Coast. With the current proposals, the large majority of demand will still be domestic so it will not necessarily see current gas prices reaching those of the international market. Interestingly, there is some potential for local coal prices to increase towards international prices given current global demand, and the fact that export dominates local consumption.

### **Interaction with mandated energy efficiency schemes:**

End-use energy efficiency will play a critical role in any economically efficient and environmentally effective policy response to climate change. It offers some of the most cost-effective greenhouse gas emissions reductions available – many energy efficiency options have negative abatement costs – as well as offering many other environmental and social advantages. The potential scale of efficiency improvements is also great.<sup>9</sup>

Despite these many benefits, there is a clear need for policy intervention to promote energy efficiency as many of its benefits are market externalities while there is also widespread market failure in demand-side decision-making as energy users fail to undertake even cost-effective energy efficiency options.

While emissions trading can ‘internalise’ some of these market externalities, the greater challenge appears to be in solving existing market failures in decision-making. The reasons for these failures are complex, but include:

- poor understanding of energy efficiency by key decision-makers;
- difficulty in separating the effects of energy efficiency enhancements from other phenomena that influence energy consumption;
- little motivation for many participants facing generally low costs for energy; and
- institutional barriers to action for even informed and motivated decision-makers.

Adding to these policy challenges are the wide range of energy services, diverse equipment and infrastructure, and many decision-makers involved.

Emissions trading alone can only promote energy efficiency by adding a price incentive. This is, however, unlikely to influence decision-makers who already fail to act on many cost-effective energy efficiency actions. The UK Energy Saving Trust notes that “Price based mechanisms, in general, will not address the information and consumer related barriers to energy efficiency investment – here regulatory solutions tend to be more effective.” In particular, “Neo-classical economic conceptions of regulation as inherently less efficient than market based instruments cannot be applied to energy efficiency, because of the extent of market failure... In practice, some examples of regulation have proved very cost-effective.”<sup>10</sup>

### **Compensation to non-traded sectors:**

We strongly support 100% auctioning of permits. Free allocation to large emitters on the basis of ‘compensation’ would represent a significant governance failure and throw into question the ability of the government to deliver an effective, efficient and equitable ETS.

Compensation has been defined as “something (such as money) given or received as payment or reparation (as for a service or loss or injury).”<sup>11</sup> The introduction of a carbon price doesn’t represent an additional imposition on emitters, rather the removal of a public subsidy they have been receiving over the last decade or more – after all, the Australian government committed to reducing national emissions in 1992 at Rio.

In this regard, the strongest case for compensation is actually back to the public - emitters can reasonably be asked to ‘return’ some of the subsidy that they have been taking for this last decade, particularly to the extent they played a role in delaying effective action until now. This delay in taking action has made Australia’s challenge in making a fair contribution to global emission reductions harder and more expensive than it need have been.

<sup>9</sup> See, for example the *IPCC Fourth Assessment Report, WGIII, 2007*

<sup>10</sup> Energy Savings Trust, *Putting Climate Change at the Heart of Energy Policy*. Submission to the UK Energy White Paper. London, 2002. For more discussion see, for example, MacGill et al, “National Emissions Trading for Australia: key design issues and complementary policies for promoting energy efficiency, infrastructure investment and innovation,” *Aust. J. Env. Management*, Vol. 11, December 2003.

<sup>11</sup> [www.wordnet.princeton.edu](http://www.wordnet.princeton.edu).

Arguments that introducing an ETS without such compensation will adversely impact investor confidence in Australian governance have the matter entirely the wrong way around. The 'owners' of public companies are its shareholders and these have invariably changed markedly over the last decade through investor shareholdings. Some investors have made the judgment over the last decade that climate change was a problem and that effective policy demanded "polluter pays" and changed their portfolio holdings and the prices they are prepared to pay for shares in large emitters accordingly. Presumably some other investors have made the judgment that climate change wasn't a problem or, worse, that government would abandon principles of good governance and compensate them, and adjusted their investment strategies accordingly. Paying compensation to large emitters therefore effectively penalizes investors who assumed good governance while rewarding those who took a bet against good governance. This is the worst possible signal to be sending investors.

Such so-called compensation would have wider governance impacts. If key stakeholders see some particular industries being rewarded for making patently unreasonable claims for compensation, then they are obliged to apply similar pressure. If poor governance prevails, then they must assume that if you're not at the table in Canberra then you're probably on the menu. Even more broadly the transition to a low carbon future will require considerable social consensus and few things are more damaging to this than poor governance rewarding a favored few. Widespread cynicism and an unwilling to make sacrifices are a possible outcome.

Low income households and impacted communities have a far better case for compensation as they are demonstrably unable to 'pass on' the impacts of increased energy prices and regional transitions.

### **Infrastructure**

Our future infrastructure investments will play a critical role in major longer-term emission reductions. They define the available choices for many climate change actions, and their respective costs. The planning of our cities, building stock, transport networks and energy supply industries are all key elements in this regard. Urban and transport infrastructure typically has a long capital stock turnover – from decades to half a century or more. This means that inappropriate infrastructure investments now lock in significant greenhouse emissions for decades to come.<sup>12</sup>

Many important decisions on infrastructure are made, or tightly directed, by local, State and Federal governments. Price-based mechanisms such as emissions trading may not 'reach' these decision-makers, without other policies to guide government decision-making in place. Examples include regulation of energy industry investment through revenue regulation for gas and electricity network service providers. Other examples could include a regulatory requirement for interval metering of all industry participants, and standardised connection agreements for small generators.

The potential for emissions trading to appropriately drive investment will critically depend on the longer-term price signal that it sends. An emission trading scheme designed to minimise the price of emissions over the shorter term may diminish this signal, and adversely impact on appropriate investment decision-making for the longer term. Even with an appropriate long-term signal, particular investors may not be the party required to buy permits to operate its infrastructure in the longer term. For example, the prospects for improving energy efficiency in our building stock have been greatly damaged by the split incentives between builders paying capital costs and tenants paying operating costs.

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<sup>12</sup> For more discussion see, for example, MacGill et al, "National Emissions Trading for Australia: key design issues and complementary policies for promoting energy efficiency, infrastructure investment and innovation," *Aust. J. Env. Management*, Vol. 11, December 2003.

There is also the question of assessing and responding to adverse cumulative impacts that arise from many relatively small private investments. It is unreasonable to expect that private investors can, or should, have to account for such cumulative impacts if their own potential contribution is relatively minor. Again, governments have a vital role to play. For example, large-scale wind industry development in Australia seems to require appropriate planning and strategic policy support for reasons including the potential for projects to share network investments and their cumulative impacts on power system operation.

The potential limitations of emissions trading in driving investment are very relevant to the Australian electricity industry given recent projections that very significant investments in generation and networks will be required over the coming decade. There are great risks for longer-term emissions in getting such investments wrong. For example, one new conventional 1000MW coal fired base-load generator will emit almost seven million tCO<sub>2</sub> each year.<sup>13</sup> Over a typical 40-year life, this plant will emit nearly 280 million tCO<sub>2</sub>.

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<sup>13</sup> A 1000MW plant with emissions of 850kgCO<sub>2</sub>/MWh operating at 92 per cent capacity factor will emit around 6.85 million tCO<sub>2</sub> each year.

