Energy Retailers Association
of Australia Incorporated

17 August 2009

Dr John Tamblyn
Chairman
Australian Energy Market Commission
PO Box A2449
SOUTH SYDNEY NSW 1235

By email: submissions@aemc.gov.au

Re: Review of energy market frameworks in light of climate change policies - 2nd Interim Report (EMO 0001)

Dear Dr Tamblyn,

Re: Review of energy market frameworks in light of climate change policies - 2nd Interim Report (EMO 0001)

The Energy Retailers Association of Australia (ERAA) welcomes the opportunity to again contribute to the AEMC's consultation into the impacts of the climate change policies on energy markets.

Our comments are presented below in order of decreasing priority for retailers.

Regulated retail prices

The risks and inefficiencies of retail price regulation (particularly under the CPRS) remain a major concern for retailers. In particular, the inability of existing regulated tariff setting processes to adequately deal with cost increases and volatility associated with the CPRS and eRET are a real threat to the ongoing viability of the retail sector.

In order to better understand the potential impacts of the CPRS related to regulated retail pricing, the ERAA engaged Farrier Swier to explore these matters in some depth. The report from this research assignment is attached for consideration by the AEMC.

We note that Farrier Swier have reached similar conclusions to the AEMC (and its advisor Frontier Economics) on the implications of the CPRS for regulated tariff setting. In particular, that:

- Carbon forward markets are undeveloped and will not allow adequate management of carbon price exposures in the early years of the CPRS;
- Forecasting carbon prices is significantly more challenging than forecasting NEM pool prices due to:
    - Reliance on complex immature international carbon markets; and
    - Exposure of carbon price to regulatory and policy changes in other countries.
- CPRS costs will become a significant and volatile component of energy costs;
- Historic approaches to regulated tariff setting are insufficiently flexible to ensure sustainability of retailers through this transition period.

The long term ERAA position is that the preferred approach to dealing with this issue would be to remove retail price regulation. However as noted by the Commission, we are aware that ultimately this decision is the responsibility of state governments and it would appear that several of these jurisdictions plan to maintain retail price regulation in the near term.

In this environment the AEMC's recommendations to introduce greater flexibility into regulated retail tariff regimes where they continue are sound.

Proposed models

The ERAA is supportive of Model 2 (retailer adjustment within pricing period) as this would help mitigate some of the risks associated with the introduction of the CPRS by allowing retailers to adjust the retail price in response to changes in wholesale costs. An area of concern related to this model however, is the proposal for an ex-post price true-up at the next tariff review. This part of the proposal is unworkable, as it attempts to impose a "network" style true up arrangement (which can work for monopoly businesses where customers cannot move), but cannot work in a contestable markets, where true-up would apply across different customer bases. Any check process performed by regulators on retailer initiated prices should be initiated early and avoid any concept of a true-up mechanism.

A serious limitation with the proposed Model 1 is that retailers would potentially have to endure significant losses until the six-monthly review and the subsequent resetting of the price. Depending on the magnitude of these losses, this could put many retailers in a precarious position, particularly given the anticipated increased prudential burden as a result of the climate change policies.

A further critical parameter relevant to both models is the definition of the threshold outside of which costs would need to fluctuate prior to an adjustment being allowed. This makes the determination of the threshold critically important, since if it is made too broad retailers will under-recover significant costs. Another concern is that a sustained increase in costs just below the threshold would prove detrimental to retailers as there would be no way of recovering these costs. We therefore consider that the proposed model should account for such possibilities. Details of how this could be managed would be determined in the implementation phase.

Generation capacity in the short term

Reserve contracting

The ERAA is not supportive of the reserve contracting mechanisms outlined in the Report. In our view these mechanisms will simply extend/amplify the well known distortionary effects of the Reliability Emergency Reserve Trader (RERT). The application of the standing reserve and prolonged targeted reserve seem impractical as they will require an investment in reserve capacity well ahead of dispatch – i.e. before the risk of any shortfall in generation can be adequately assessed. This increases the likelihood of customers bearing the cost of reserves that ultimately are not utilised.

Additionally, the adoption of these mechanisms could result in demand side participants withdrawing their output from the market to enter reserve contracting arrangements where the revenue stream is more certain. Given most market participants strong opposition to the RERT due to its distortionary effects, the contemplation of these equally distortionary mechanisms is a step backward.

Of particular concern to retailers are the unhedgeable costs that invocation of reserve trader events incur. These costs need to be passed through to customers, and create significant problems for the industry given the reasonable expectation of customers to face only contracted costs – and not large unexpected surcharges. Clearly in areas were retail price regulation exists – these costs need to be born by retailers directly.

More accurate reporting of demand side capability

In principle, increased accuracy in the estimation of demand side capability would assist AEMO in deciding when to invoke market interventionist mechanisms such as the RERT in response to any capacity shortfall. While this is a sound objective, the ERAA remains unconvinced that increasing obligations on retailers in this area will yield substantial benefits, given that retailers already report such information to the market operator through the existing SOO process. We therefore urge the AEMC to consult with relevant market participants including retailers to determine among other things what information is available, who has it, what format it can usefully be provided to the AEMO, and what practical steps can be taken to improve the overall process. This work must establish that the benefits for more information in this area will overcome the administrative costs of collecting such data. No analysis of either the costs or practicalities of this proposal appears to have been performed to date.

Load shedding management

This proposal as we understand it involves the upfront payment to market customers for making their load centrally dispatchable, with a further payment (based on their 'declared value of customer reliability') to follow if the load is actually dispatched.

The AEMC states that load shedding management (LSM) is a more economic and socially desirable outcome than involuntary load shedding. Whilst we agree that involuntary load shedding presents a number of public relations challenges, we are strongly opposed to the LSM and see no sound rationale (economic or social) for its implementation.

According to the AEMC the LSM is economically desirable because it provides an avenue for customers to declare their value of reliability and be compensated in accordance with their value. This approach is inconsistent with other elements of the market design in which service providers are paid the market value of their services, not whatever value they choose to nominate (ie. we do not have a “pay as bid” market).

As it stands customers have an incentive to enter into contracts with retailers to shed load when it is in their commercial interest to do so, similarly retailers have an incentive to enter such contracts to minimise their exposure to high spot prices. Market interventionist mechanisms such as the LSM can only be justified when there is a clear market failure. We assume that the AEMC sees the distortions created by the Market Price Cap as warranting this intervention, although more clarity on which market failure the AEMC is seeking to address with this measure is required. We note that the review into demand side participation in the NEM seems to indicate that there are no major impediments to demand side participation.

Given the relative price inelastic nature of electricity demand, it can be argued that relatively high prices would be required to invoke a demand side response – possibly higher than the market price cap (MPC). If the underlying issue is that the MPC is not high enough to encourage more demand side participation, then this issue should be examined separately, and not addressed via the LSM. In any case, it is our understanding that the Reliability Panel undertook substantial work to determine the appropriate level of the MPC and considered that the costs of a higher cap outweighed the benefits (including bringing more demand side into the market).

Like the RERT the LSM is inefficient and distortionary, whereby contracted load would receive an upfront fee for making load dispatchable, and then potentially large payments based on the ‘declared value of reliability’ if used. These costs would then be recovered by an uplift on market customers (including retailers). Unpredictable and unhedgeable costs of this nature are undesirable and bring the industry into disrepute when retailers are forced to recover them from end use customers (which is a socially undesirable outcome). The LSM could also disincentivise interruptible load from entering into market contracts with other participants (such as retailers) as they may well opt to take the chance of receiving uncapped returns if an LSM arrangement is invoked, rather than entering the market were returns are limited by the Market Price Cap and other reliability settings.

Overall, the ERAA does not support the LSM proposal and recommend that it is not recommended to the MCE.

Connecting remote generation

The ERAA has previously expressed support for the general concept of the Network Extensions for Remote Generation (NERG) particularly given the market failures associated with the connection of remote renewables to meet the expanded Renewable Energy Target (RET). Whilst we are pleased that the AEMC has opted to progress the development of Option 2, we still remain concerned about the lack of clarity surrounding how NERG zones will be chosen and the implications for the long-term interest of customers.

The 2nd Interim Report states that the Australian Energy Market Operator (AEMO) and Network Service Providers (NSPs) each have a role in planning NERGs whereby the AEMO will identify potentially economic geographical locations. In making its assessment the AEMO would have regard to the amount of possible generation capacity in an area and whether the likely generation is sufficiently remote. This according to the AEMC would enable NERG development to be strategically focused on locations with the best prospects for developing efficient outcomes in the National Electricity Market (NEM). These criteria in our view are vague and leave some key questions unanswered and may incentivise overbuild over the level required for committed generators. A key component of any NERG assessment should include the number of connection enquires from generators and for any overbuild to be determined on the basis of cost benefit analysis. Such consideration encourages investment efficiency and ensures equitable share of the cost and risk by the committed generators. Other concerns on the assessment include the type of renewable energy, i.e. baseload vs. intermittent and issues surrounding reliability, congestion and ancillary services.

Given that under the NERG framework consumers will bear the risk of stranding it is imperative that the NERG selection process is transparent. Though much of the details can be espoused in Guidelines by the AEMO/Australian Energy Regulator (AER) once any Rule change is enacted it is important that the AEMC clarify the high level criteria for selection and evaluation of NERG's to guide the development of these procedures. Clarity around cost recovery arrangements to ensure a reasonable sharing between customers and connecting generators is also required.

In regard to the proposal for making NERGs contestable, the ERAA is supportive. The development of multiple proposals under a competitive process where the AER chooses the best project should lead to efficiency gains.

Efficient utilisation and provision of the network

The ERAA appreciates the need for appropriate locational signals to maximise efficiency in the market. We also remain concerned that the generation investment required by the CPRS and expanded RET will inefficiently increase congestion under the existing regime.

Despite these concerns we are concerned that that the proposed G-TUOS scheme does not deliver a useful signal to investors due to (amongst other problems) its annual reset (ie. lack of price certainty), and lack of linkage to the investment regime (ie. funds not linked to addressing congestion). We are also concerned that this significant proposal has been launched late in the process and has not had the industry wide debate that would normally be associated with such a significant change to the market.

Further concerns relate to the annual reset and likely instability in the G-TUOS costs that may increase barriers to generation investment and increase generator cost volatility. These outcomes would likely result in increases to premiums demanded by generators through the contract market – thereby directly impacting on retailer (and ultimately customer) costs.

Inter-regional transmission charging

The proposed inter-regional TUOS if applied appropriately should encourage TNSPs to undertake investments which confer inter-regional benefits on the market. This will assist in addressing a key weakness in the transmission planning regime and facilitate activities such as interconnector augmentation, which is critical if regions such as South Australia are to accommodate increasing amounts of wind.

We suggest that the AEMC further explore the potential for price shocks if large inter-regional links cause significant changes to the cost reflective component of customer tariffs in regions where link augmentations proceed. If such shocks are likely, then the benefits of tariff smoothing mechanisms should be considered.

The ERAA welcomes further discussion with the AEMC on the views expressed in this submission, or on other matters associated with the impact of climate change policies on the retail sector generally.

Please contact me on (02) 9437-6180 to facilitate such discussions.

Yours sincerely,

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Farrier Swier
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Managing CPRS transition: implications for electricity retail price regulation

Report for the Energy Retailers Association of Australia by Farrier Swier Consulting[i]

Summary

It will take some time for the electricity industry to transition to a low carbon future with an effective liquid carbon market. The transition period will be characterised by:

- volatility and uncertainty in wholesale electricity prices, in part because of uncertainty in carbon prices, and
- an increased risk of unexpected generator failure, with potential flow on effects for retailers through failed hedging arrangements.

To maintain a financially viable and competitive retail sector, retail prices must reflect costs. During the more volatile transition period, there must be flexibility to adjust retail prices quickly. Such adjustments are at odds with current retail price regulation.

Therefore, governments need to remove or change retail price regulation.

Introduction and overview

Transitioning to a low carbon electricity industry requires profound changes to physical, commercial and risk management arrangements

The federal government proposes to introduce the Carbon Pollution Reduction Scheme (CPRS). The CPRS and other policies aim to bring about a transition to a low carbon electricity industry in Australia (the transition). The changes required to physical, commercial and risk management arrangements as the result of the CPRS are the most profound since the creation of the modern electricity industry.

The federal government has stated that competition and consumer choice in retail energy markets are the best ways to protect consumer from being overcharged for the costs imposed by the CPRS.[ii] State governments are progressively reviewing the need for retail

AEMC has reservations that existing retail price regulatory arrangements may not cope

This paper explores the difficulties and risks with electricity retail price regulation and CPRS

price cap regulation[iii], however so far, only Victoria has removed retail price controls. The Australian Energy Market Commission (AEMC) considers that regulation of retail energy prices, in its current forms, may not be flexible enough to deal with potentially large and volatile changes in retailer costs driven by the CPRS and the Extended Renewable Energy Target scheme eRET[iv].

The Energy Retailers Association of Australia (ERAA) asked Farrier Swier Consulting to assess the difficulties and risks involved in retail electricity price regulation in the transition to the CPRS and a low carbon electricity industry, noting that the analysis is most relevant to NSW, Queensland and South Australia.

Our analysis highlights that the risk and uncertainty associated with the transition[v] is due to a combination of CPRS affecting inputs to electricity prices, and the trend to increased internationalisation of Australia's energy markets.

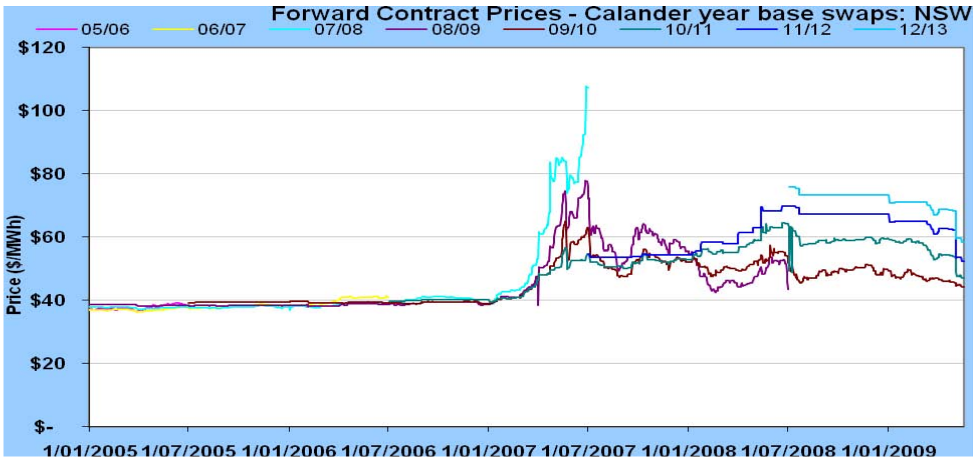
Over time, we would expect some of the initial CPRS uncertainties to reduce as government climate change policies (hopefully) stabilise, and as forward carbon hedging financial markets develop that enable parties to manage their carbon price related risks. However, it is likely that some medium and longer term effects will continue to impact prices for some time.

The transition will create problems for retail price regulation because of the inevitable higher level of risk and uncertainty in wholesale electricity prices, and the relative immaturity of the carbon market during that time. Immaturity means a lack of proven mechanisms to address uncertainty.

Current retail price regulation evolved in a certain, stable wholesale electricity market environment

Until recently, retail price regulation has been undertaken within an environment of relatively certain and stable wholesale electricity prices; since 2007, the environment has become far more volatile (refer figure 1).

Figure 1- Forward Electricity Prices



Source : ERAA

Moving forward, CPRS introduces new risks and uncertainties for the wholesale electricity market

That in turn makes a price regulator's job even harder, with flow on risks to retailers that could result in retailer failure

In contrast, in the transition to effective carbon pricing under the CPRS, regulators involved in retail price regulation need to make decisions about single point electricity cost allowances, faced with arguably unprecedented variability and no history. This is a problem because the option of being conservative - adopting the extreme high of the range – is at odds with the objective of retail price regulation, being to guard against incumbent electricity retailers exercising market power.

The variability and uncertainty created in the transition will make it extremely difficult for regulators to determine a wholesale cost allowance that is competitive, but still allows a retail business to manage its risk. If the regulator makes an error[vi], retail competition could be diminished, or worse still, a retailer could suffer financial distress, or fail.

CPRS could increase the likelihood of unexpected generator failure – affecting hedging arrangements

If that occurs, the overlay of retail price regulation could increase the risk of a retailer failing

Flexibility is necessary to enable rapid price adjustments for sudden unexpected changes

CPRS may challenge the robustness of retailer risk management arrangements by increasing the risk of unexpected defaults by emissions intensive generators. A retailer may fail because unexpected generator failure undermines the retailer's financial hedging arrangements. Moreover, the retailer's ability to access risk management tools, and the associated costs, will fluctuate.

Constraining retailer revenue and flexibility through retail price regulation could limit the rapid adjustment in prices needed to cope with an unexpected generator default.

Farrier Swier
Consulting

To support an effective transition, governments need to remove or change retail price regulation

It will take some time for the electricity industry to transition to a low carbon future with an effective liquid carbon market. To support an effective transition, governments need to remove or change retail price regulation.

Background and assumptions

CPRS can be viewed as just another uncertainty in the market

To assess possible impacts of, and interactions between, the transition and retail price regulation, we have assumed:

- CPRS will impact the NEM spot prices and hedging arrangements in similar ways to other uncertainties (for example, the recent drought), that is:
  - Directly – through tangible factors. Tangible factors are the fundamental engineering and economic forces of supply and demand that are capable of measurement and estimation and can be incorporated in economic models.
  - Indirectly - through intangible factors. Intangible factors include behaviours, risk preferences, beliefs and cultures that affect business judgments, particularly in the face of uncertainty. These factors cannot be readily captured in models and are difficult to assess in times of transition and new information.

Retail price regulation exists to protect customers from non competitive prices

- No fundamental changes to the approach to retail price regulation, so that:
  - The objective of retail price regulation is to guard against incumbent electricity retailers exercising market power and charging non competitive prices in the transition to a fully competitive market.
  - The regulator needs to make ex ante decisions about the costs that are to be recovered through retail prices for the relevant period. These costs include wholesale electricity costs, network charges, the cost of serving and acquiring customers, and a retail margin.
  - In setting the allowance for the forecast wholesale electricity cost, regulators generally consider models that estimate the long run marginal cost of electricity, forecast spot market outcomes, and the observed cost of forward contracts.

Effect of CPRS on the wholesale electricity market

CPRS changes the market in several material ways, including changes to:

- *merit order*
- *fuel costs*
- *investment, disinvestment, and investment confidence*
- *reliability*
- *short term bidding behaviour*

Competitive electricity markets have been operating in South Eastern Australia for nearly 15 years. The National Electricity Market (NEM) commenced in 1998 and absorbed the state markets established in the mid 1990's. The NEM is widely considered amongst the most successful competitive electricity markets in the world.

The NEM spot market is an energy only "gross pool" where prices are volatile and can be set as high as $10,000/MWh. The spot market is supported by a financial contract market which retailers, generators and customers use to manage risks. If risk is not managed appropriately, or risk management arrangements fail, spot market payments can very quickly exceed a retailer's financial capacity.

The proposed CPRS requires coal and gas fired electricity generators to acquit Australian Emission Units (AEUs) annually against assessed carbon emissions. The supply of permits will gradually be reduced causing their price to rise. Generators will acquire permits through grants of free permits, a monthly auction, or secondary and derivative markets. The Government has announced a fixed price for AEUs of $10 per tonne for the first year of the CPRS from July 2011, but (assuming the scheme is implemented as planned) AEU prices in subsequent years will be market determined subject to a cap price of $40 per tonne.

The CPRS will have tangible impacts on the investment in and operation of generation plant in the NEM, the main ones being:

- **Changed merit order operation of existing generation plant** - Coal and gas fired generators will need to factor the cost of AEUs (or the value of free AEUs) into their bidding in the spot electricity market, the determination of target generation volumes and the pricing of hedge contracts. As the emissions intensity of different generation technologies varies, this is expected to cause changes in the merit order for generation.

- **Fuel costs** - The CPRS is expected to impact significantly on the demand for gas within Australia. Rising international energy demand and international climate change policies are driving the potential export of gas from Eastern Australia. If proposed LNG projects proceed, domestic gas prices are expected to rise towards international levels.

- **Investment** - The CPRS and extended RET scheme will change the economic drivers for new generation plant towards low emission technologies and encourage investment in cost effective actions to reduce emissions for existing plants. Gas power station technology and wind turbines are considered the only currently mature technology options capable of expansion on a large scale. Other technologies (geothermal, wave power, solar, carbon capture and storage, etc) may become competitive over time.

- **Disinvestment** - As AEU prices rise, and investment in new low emissions plant increases, then this is expected to cause retirement of high emissions generation plant.

- **Reliability** - Reliability in the NEM will be affected by the changes in plant required to move to a low carbon industry, specifically disinvestment in high emissions generation plant, replacement with lower emissions plant; and the significant increase in intermittent wind generation in some regions.

Also, during the transition, the wholesale electricity market will be affected by intangible factors including:

- **Commercial judgments on short term bidding behaviour** – As the pricing of carbon emission starts affecting the merit order, each generator will need to make commercial judgments on its bidding and contract strategies, including its competitors' behaviour and its own price / volume tradeoffs.

- **Investment confidence** – The CPRS may affect willingness to make long term investments in the face of significant uncertainty, and may affect the required return on capital.

- **Counterparty credit risk** – At different times, the CPRS combined with other factors may affect the willingness to take counterparty credit risk when there is uncertainty as to the counterparty's financial stability.

CPRS transition and forecast wholesale electricity prices

In the initial stages of the NEM, the commercial behaviour of market participants was uncertain, but over time the market has matured and these uncertainties have reduced.

In addition, until recently, the factors that determine expectations of the forward wholesale price path - generator costs (including cost of new investment, fuel costs), generation and transmission failure rates, and demand risk – have been reasonably well understood, and able to be incorporated in models.

The NEM has moved from a relatively stable environment, to one of considerable uncertainty

However, the drought and the global financial crisis have created uncertainties, as has speculation about the timing and nature of the CPRS. Transitioning to a reduced carbon future brings new uncertainties.

During the transition, any forecast of wholesale electricity prices – whether derived for valuation, accounting, regulatory or business price setting, risk management or some other purpose – needs to take account of new uncertainties and new impacts on existing factors.

CPRS introduces new uncertainties

New uncertainties include those associated with CPRS regulatory risk, carbon pricing, generation merit order, gas pricing, and plant retirement

Wholesale electricity cost forecasts are already being affected by uncertainties associated with CPRS regulation, carbon pricing, CPRS-driven change in the merit order and electricity pricing, and with gas pricing. Over time (arguably at least 5 to 10 years), these uncertainties should diminish as CPRS policies stabilise and effective carbon hedging markets develop.

Currently, uncertainty caused by plant retirement related to CPRS probably is not affecting forward wholesale electricity costs, but it is expected to become important in the medium term.

Uncertainty on the policy parameters and timing for the CPRS is a typical ***regulatory risk.*** Following the recent deferral of the CPRS and the announcement of a $10 per tonne price for the first year, CPRS related electricity price uncertainty has been shifted out to the period starting July 2012. Eventually, a liquid forward hedging market for AEUs should develop enabling this regulatory risk to be managed at a low cost, but this will take time. In the meantime, there is significant uncertainty as to the policy parameters for the final CPRS legislation, when (and if) it will be passed by Parliament, and the details of supporting regulations. These uncertainties already are having an intangible impact on forward electricity prices. This is illustrated by the current lack of forward trading in electricity contracts for 2010/11 and 2011/12 compared to good liquidity observed up until as recently as March 2009.

Carbon pricing uncertainty - The need for electricity generators to forecast and manage the price risk for AEUs – is also new. Electricity generators must allow for the cost (or value) of carbon permits in determining their spot price bidding and their target generation volumes.

The CPRS has been designed to link with international carbon markets[vii]. Most analysts expect that, in part, compliance obligations will be met through importation of eligible international permits. Australia will be a small part of the international carbon trading market and so the price of AEUs will be set by international carbon prices, which in turn are affected by international policy decisions. Policy making processes in each country are highly political and therefore complex to understand and inherently uncertain.

So far European carbon permit prices (figure 2) and implied Australian permit prices (figure 3) have been volatile. If the United States moves towards implementing a cap and trade system as proposed by the Obama administration, then AEU pricing is likely to be strongly affected by US policy decisions.

Once liquid forward hedging markets for carbon develop, then international policy risks can be hedged by participants (generators and retailers) - but these international markets will also take to time to develop and could lag behind Australia's carbon markets. Alternatively, AEU price risk may be decreased by the government effecting policy changes to provide greater certainty during the transition period for example by introducing carbon prices collars (minimum price limits) and / or lower price caps.

Figure 2 – European EUA experience

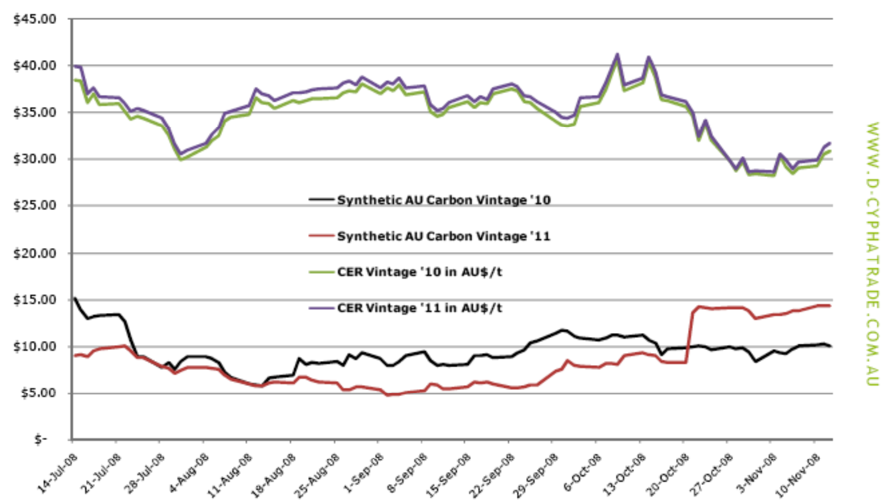
Source Point Carbon   http://www.pointcarbon.com/news/historicprices/

Supply and demand in the European carbon market operate within constraints set by governments which creates a level of political risk not present in traditional markets. The primary source of political risk is the setting of emissions caps (the supply of EUAs) in relation to actual emissions. For example, setting emissions caps too high creates an oversupply of EUA s and will result in a very low carbon price. This prevents the scheme from working effectively, as the carbon price needs to be sufficiently high to encourage companies to reduce carbon dioxide emissions internally and encourage investment in alternate energy sources.

To date, the European carbon market has experienced two distinct supply disruptions. The first occurred with the release of 2005 emissions data in April/May 2006. The market for allowances was long by 44 MtCO2 in 2005, implying that emissions caps for Phase I were too high (i.e. an oversupply of EUA s). The second supply disruption occurred at the end of Phase I, as the European Commission had previously decided that Phase I EUA s were not fungible with Phase II EUA s. This created discontinuity in the supply of EUA s between phases.

Source: The effects of EUA supply disruptions on market quality in the European carbon market. Professor Alex Frino, Jennifer Kruk and Dr. Andrew Lepone University of Sydney, Australia

Figure 3 – Australian implied carbon permit prices



Source: D-Cypha

Also, the CPRS will affect the ***merit order for generation***, which in turn will flow through to spot and forward electricity prices, with different pricing patterns likely to emerge***.***

While in general terms, the prices bid by an emissions-intensive generators will need to rise, generators will not mechanistically add the carbon price to their previous bid prices.

Each generator will assess the behaviours of its competitors, make commercial decisions on the most profitable trade-off between price and generation volumes, and consider impacts such as maintenance practices and fuel pricing. It is difficult to forecast the exact implications of carbon pricing for the change in the merit order, as shown by the wide range of modelled outcomes for loss of volume of coal fired power (see figure 4).

Figure 4 - Wide variation in volume lost by Coal fired Power Stations

The following table from the government White Paper outlines the number of coal-fired generators that lose more than 25 per cent of their cumulative generation volume over the first decade of the Scheme when compared to modelled business-as-usual generation.

Modelled Loss of generation volume

Scenario	McLennan Magasanik Associates	ACIL Tasman	Roam Consulting
CPRS – 5	Three brown coal generators Six black coal generators	One brown coal generator Two black coal generators	One brown coal generator Three black coal generators
CPRS – 15	Four brown coal generators Six black coal generators	Three brown coal generator Five black coal generators	Two brown coal generator Three black coal generators

Source Table 13.1, White Paper. Estimates based on modelling commissioned from MMA, ACIL Tasman and Roam Consulting

Consistent with economic theory[viii], the price and volume adjustment in response to the CPRS will involve a continuous process of actions and competitive responses, and consequential changes in price and volumes sought by each generator.

This process occurred in the early stages of competitive electricity markets in the mid to late 1990's where there was strong competition for volumes amongst generators within an environment of excess capacity. As excess capacity was reduced and the market matured, a relatively stable merit order and pricing structure was established.

However, if carbon prices (and therefore the amounts to be recovered through wholesale prices) are volatile, then a stable equilibrium position will not be reached.

The CPRS is expected to result in a step change in **gas utilisation** for power generation and uncertainty in **gas pricing.** Government bodies and analysts expect that gas power generation in the NEM will expand significantly given its lower emission intensity than coal, and the fact that, together with wind, gas is currently one of two mature technologies capable of expansion on a large scale. Gas pricing and availability are therefore expected to be important determinants of wholesale electricity prices.

Historically, gas pricing in Southern and Eastern Australia has been stable (due to long term contracts) and gas prices have been low by international standards.

However, internationally, demand for gas is expected to expand significantly, as many countries implement policies to shift to lower emission technologies. LNG export proposals in Queensland are based on meeting this demand; these projects would strengthen the link between domestic gas prices and international energy prices[ix]. However there is no certainty if, or on what time-frames, these proposals will proceed; and if they do proceed, how the projects will affect domestic gas prices.

The CPRS and expanded RET scheme are also creating **new peak electricity pricing risks**. Traditionally NEM reliability requirements have been determined by the reliability of thermal plant, transmission and demand peaks. The effect of intermittent generation (wind) on generation reserves is already affecting South Australia, and over time is likely to impact on other regions. The AEMC is proposing to expand options for NEMMCO to contract for reserve to manage this issue.

An important new medium term factor is **uncertainty over plant retirement**. The CPRS is anticipated to trigger plant retirements for high emission brown coal plants and possibly black coal generators, as carbon prices rise. (See figure 5.)

However, the timing and extent of plant retirement is highly uncertain. The following table indicates the range of possible outcomes for generators that may exit the market. Plant retirements for those generators with a significant share of the market in a region such as Victoria could have a significant, though temporary, impact on prices in the period leading up to and during the retirement process.

Figure 5 – Plant retirement assumptions

Generators that will exit the market (other than exit under business as usual)	Consultant
None in period to 2020	Roam
One generator	MMA
Two brown coal generators and one black coal generator will retire in their entirety (CPRS -5 scenario)	ACIL Tasman
Three brown coal and four black coal generators to retire in their entirety (CPRS -15 scenario).	ACIL Tasman

Source: Page 13-17 White Paper

Ideally, plants would retire on a phased basis, and coincide with new lower emissions plant coming on line, so that prices would adjust relatively smoothly. Conditions imposed for assistance to coal generators under the CPRS are designed to encourage a smooth transition[x]. It is possible that a coal-fired station that wants to retire (but does not want to lose its remaining compensation payments due to lack of reserve margin) could effectively be mothballed, but remain registered as a backup unit. Arguably, large retailers will have an interest in working closely through their contracting processes with various generators to ensure a coordinated transition.

However, if for whatever reason the timing of plant retirements and new plant start up is not managed smoothly, then short term changes to the demand supply balance could cause significant price volatility. Factors that could lead to price volatility include:

- lower reliability due to running down of maintenance and capital expenditure towards the end of the plant life
- change in ownership (including operation by bankers or administrators) of a plant that is about to be retired
- commissioning problems and delays in new plant start-ups.

To date there has been little experience in the NEM with significant plant retirements, and therefore there is limited information to assess the impacts on prices. The MCE recently suggested increasing VoLL to increase incentives for reliability in the transition to CPRS and a low carbon electricity industry in Australia. Increasing VoLL should increase incentives for participants to contract against the risks of high prices and promote reliability, but it would increase volatility in spot prices. In addition, increasing VoLL increases the impact if financial risk management arrangements fail.

Another medium term factor is **transmission congestion.** The capacity of the existing transmission system was designed to accommodate power flows reflecting the operating regime for the current portfolio of generators. Decisions on operating existing generation plant and building new generation plant in response to the CPRS and expanded RET scheme are expected to cause changes in power flows, and may cause transmission congestion problems resulting in higher peak electricity prices in regions behind constraints. The AEMC is considering possible rule changes to encourage more efficient provision and utilisation of the transmission network.

CPRS affects existing inputs to wholesale electricity price forecasts

International and domestic climate policies affect capital costs for generation plant

Capital cost assumptions for new generation plant are an important input to all wholesale electricity price forecasting models. Recent factors that have affected capital costs and price forecasts include increased prices for inputs (steel and labour), full order books for manufacturers of key equipment and plant, and exchange rate changes. Though present in the past, in recent years these factors have been subject to quicker and larger changes, with consequent effects on price forecasts.

Climate change polices followed by other governments internationally (and to a lesser extent, the CPRS) could have a significant impact on the costs for generation equipment. For example, aggressive policies internationally to increase renewable energy investment could lead to shortages and higher equipment prices for wind and gas turbines. The timing and nature of such government policies, and their impact on renewable energy costs, are a source of uncertainty.

CPRS affects the risk of generator default and hedging arrangements failing

Coal fired generators could default unexpectedly on their hedging arrangements

A *retailer's wholesale costs could increase rapidly, materially affecting its profits, and potentially causing financial failure*

If this scenario applied to a major generator and major retailers, there could be "knock on" retailer failures

Major retailer failures would test the adequacy of ROLR arrangements

A number of generators have stated that the compensation offered by the government under the Electricity Sector Adjustment Scheme is inadequate and increases the risk of default once the scheme expires.

Where the generator's financial position is signalled well in advance, retailers can manage the risk of their generator counterparties defaulting on hedging arrangements. . However, coal fired generators could *unexpectedly* default on their hedging arrangements due to any or all of:

- impairment losses (for example, triggered by CPRS legislation or changes in regulations) which precipitate breaches of loan covenants and failure to secure debt or equity refinancing
- a sudden unexpected increase in carbon prices before liquid carbon hedging markets have developed
- the combination of a CPRS driven merit order change combined with some other unexpected shock(s) (for example plant breakdown, strikes, drought, unavailability of debt finance, etc).

If a generator defaults on hedging arrangements, in the absence of alternative risk management arrangements, a retailer's wholesale costs could increase rapidly and its profits could be impacted materially, possibly to the extent of financial failure. Failure is more likely if the retailer is unable to adjust retail prices quickly to reflect the change in costs.

This scenario could apply to a major generator and major retailers, in which case there is potential for "knock on" retailer failures. Major retailer failures would test the adequacy of

Retailer of Last Resort (ROLR) arrangements, which were designed in contemplation of less significant failures.

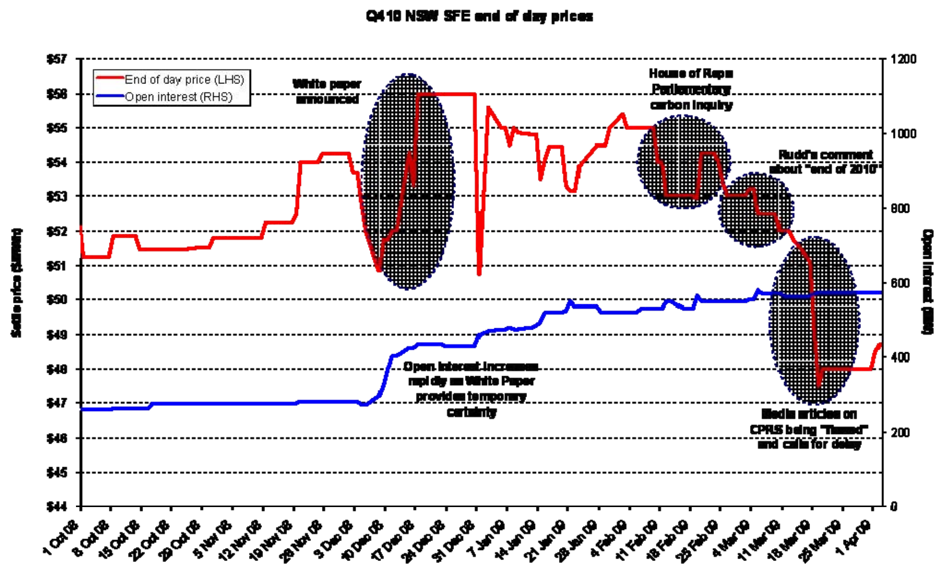
Even if the risk of unexpected defaults is considered low -- the impact of default could be severe – as evidenced by the Californian electricity crisis of 2000 and 2001[xi].

Evidence of the CPRS uncertainty on wholesale prices forecasts

CPRS uncertainty has been a major factor in recent pricing trends

While not all uncertainties discussed above currently affect NEM spot and contract prices, recent pricing trends suggest that CPRS policy uncertainty has had a significant effect. Figure 6 shows responses to the White paper, and the 4 May announcement delaying the CPRS.

Figure 6 –Changes in NEM prices in vicinity of ETS announcements



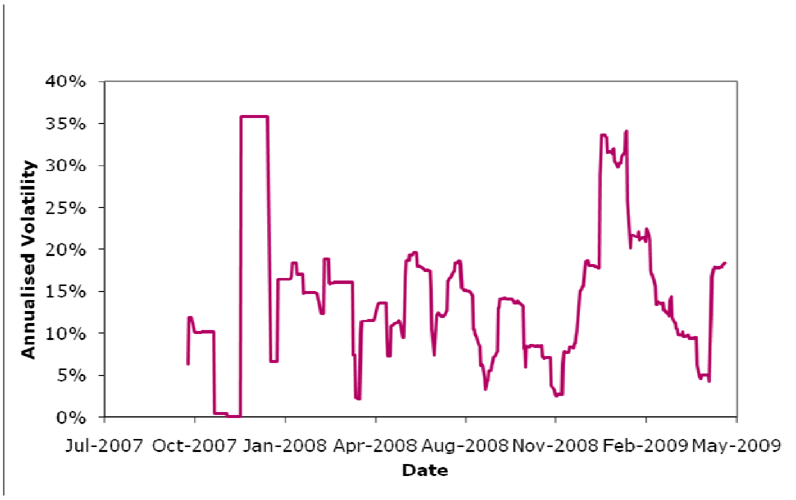
Source: AGL Energy Ltd

Figure 7 shows that volatility in base electricity contracts (for calendar year 2010) has been as high as 30 to 35% (annualised, 20 day rolling average) with volatility peaking in early 2008 and again in late 2008 / early 2009.

This illustrates the difficulty for regulators attempting to rely on forward market prices to make decisions at a time when prices are at either a low or high point in the cycle.

Volatility in base electricity contracts has been as high as 30 to 35% indicating the difficulties for regulators attempting to rely on forward market prices

Figure 7 - Volatility in base electricity contracts (Victoria)



Source : ERAA,; D-Cypha[xii]

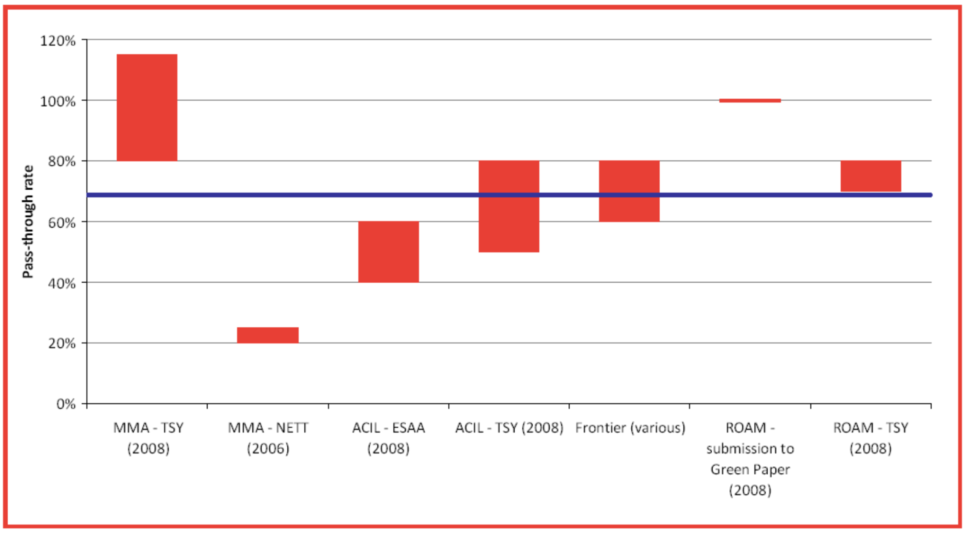
Published studies indicate a wide range of views on the extent carbon costs will be passed through

Finally, studies of the impact of the CPRS on wholesale electricity prices (figure 8) show the wide range of assessments on the extent to which the carbon cost will be passed through.

The differing assessments reflect different assumptions about the market dynamics of bidding behaviours and trade-offs made by generators. These studies focus on determining the marginal generators and the bid costs that set spot electricity prices in each period. For example with a high enough carbon price, gas fired CCGT plants will set base load power prices more of the time, displacing black coal generators that set these prices.

In a recent study, Frontier Economics[xiii] adopted three scenarios for CPRS pass through rates: 60%; 80% and 100%. They estimated an impact on total retailer costs (and therefore prices) of between 10 to 30% depending on the pass through rate scenario, the carbon price and the retailer cost base. Frontier note that this level and range of cost increases is material compared to average retailer margins of around 5%.

Figure 8 –Range of outcomes in studies of carbon pass through



Estimates are approximate only since many reports do not include an explicit estimate of cost pass-through.

Source: Impacts of climate change policies on electricity retailers, Frontier Economics report prepared for the AEMC, May 2009

Implications for retail price regulation

Current retail price regulation involves an ex ante decision about wholesale electricity costs

Until recently, decisions have been made in a relatively certain, stable wholesale electricity market environment

CPRS changes that environment, and therefore makes the regulator's job harder

It also increases the chances of regulatory error, with flow on risks to retailers – and potentially retailer failure

Customer protection will depend on the efficacy of ROLR

The higher level of risk and uncertainty about wholesale electricity prices that will inevitably accompany the transition and the associated increased risk of generator –retailer hedging arrangements failing will create problems for retail price regulation.

Firstly, all approaches to retail price regulation in Australia require the regulator to make ex ante estimates of the costs to be recovered through retail prices for a relevant period. While CPRS influences all input costs, this paper is concerned with the wholesale electricity cost component.

The variability and uncertainty created in the CPRS transition will make it extremely difficult for regulators to determine a wholesale cost allowance that is deemed "competitive", but still allows a retail business to manage its risk (including carbon risk) for the duration of the regulatory period. This is particularly problematic because the option of erring on a high allowance and adopting the extreme high of any forecast range, is at odds with the objective of retail price regulation, being to guard against incumbent electricity retailers exercising market power and setting non competitive retail prices.

CPRS could increase the likelihood of generator failure – perhaps because of unexpected changes in carbon prices, or CPRS driven merit order change

Generator failure affects retailer hedging arrangements

If hedging arrangements fail, affected retailers could also fail

That likelihood increases if a retailer cannot adjust its prices quickly because of regulated price constraints

If a regulator errs and sets the cost allowance too low, then the regulated retail prices will make some customers less profitable, or loss making. These customers are less likely to receive competitive offers and, therefore, are more likely to remain on regulated tariffs. The main adverse impacts of the error will be on retail competition and on the profits of those retailers with obligations to offer regulated prices.

If the regulator makes a serious error, or the retailer's costs or access to risk management products change quickly, then some retailers (that are marginally profitable or not managing their risk effectively) could suffer financial distress or fail. This situation is allocatively inefficient and disrupts the effective operation of the market, which would otherwise deal with changes in costs through price changes. However, the regulatory framework contemplates such events (albeit not necessarily at a significant scale) through Retailer of Last Resort arrangements.

Secondly, a new and potentially more concerning problem, is the possible effect of the CPRS on the robustness and availability of risk management arrangements which could result in significant retailer failure, particularly if retailers are unable to adjust prices quickly..

When policy makers and regulators set retail prices, they assume that retailers act prudently and that their risk management arrangements will operate effectively throughout the period. However, as discussed a retailer's risk management arrangements could fail during a regulatory period due to an unexpected generator default. This is particularly the case in the absence of a liquid forward carbon hedging market, and while CPRS uncertainty restricts the supply of long term hedge contracts.

Even if the risk of unexpected defaults is considered low, the impact of default could be severe, as evidenced by the Californian electricity crisis of 2000 and 2001[xiv].

Volatility in the wholesale electricity market will self correct over time – the market will work

However, current retail price regulation is premised on stability, rather than volatility

There will be uncertainty during the transition to CPRS – and until a liquid forward carbon hedging market develops

Generators and retailers will be exposed to a carbon price risk that is difficult to manage

Current regulatory approaches will not cope with these uncertainties

Observations relevant to policy makers

Increased volatility in wholesale electricity pricing is a natural market response; it is a logical consequence of the underlying uncertainties accompanying the transition to a stable, predictable CPRS and a low carbon electricity industry, and in the absence of liquid forward carbon hedging markets. Over time, any short term volatility should self correct.

However, the commonly accepted approaches to and concepts of retail price regulation were developed in a relatively stable wholesale electricity pricing environment, with low probability of significant business default. These approaches are likely to be too inflexible and slow to deal with the scale and pace of uncertainty during the transition.

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[i] While this paper draws on information provided by the ERAA and its members, it represents our own views.

[ii] Australian Government, Carbon Pollution Reduction Scheme: Australia's Low Pollution Future - White Paper, 15 December 2008 (the White Paper)

[iii] Clause 14.11 Australian Energy Markets Agreement

[iv] Review of Energy Markets Frameworks in light of climate change policies, Australian Energy Market Commission, Discussion Paper, 1 May 2009

[v] This paper does not focus on longer term uncertainties associated with CPRS and climate change policies more generally.

[vi] If prices were set too high, then to the extent there is effective retail competition, such competition should erode any excess returns. The risks to competition and the financial viability of retailers arise if prices are set too low.

[vii] The White Paper states that eligible Kyoto units can be used for compliance in the scheme without quantitative limits.

[viii] Economic theory suggests electricity markets operate to seek out a competitive equilibrium where no participant can make itself better off by changing its bids.

[ix] If Queensland CSG producers could achieve high netback prices by directing production into LNG manufacture, they are less likely to discount prices to attract local customers, either locally or in southern states. *Fuel and Capital Costs in the NEM, Greenfield cost data for the calculation of the 2009/10 BRCI, Report by ACIL Tasman for the Queensland Competition Authority (October 2008)*

[x] Under the arrangements, recipient generators must remain registered with NEMMCO (and follow NEMMCO market directions) at the same actual or planned capacity as at 3 June 2007, unless there is adequate reserve plant margin to allow a reduction in capacity without breaching reliability standards.

[xi] The Californian electricity crisis resulted from factors including price controls set so that public utility companies were paying more for electricity than they were allowed to charge customers, thus forcing the bankruptcy of Pacific Gas and Electric and the public bailout of Southern California Edison. These failures in turn

led to energy shortages and blackouts.

[xii] Volatility calculated on 20 day rolling average

[xiii] See Table 3, Impacts of climate change policies on electricity retailers, Frontier Economics report prepared for the AEMC, May 2009

[xiv] The Californian electricity crisis resulted from factors including price controls set so that public utility companies were paying more for electricity than they were allowed to charge customers, thus forcing the bankruptcy of Pacific Gas and Electric and the public bailout of Southern California Edison. These failures in turn led to energy shortages and blackouts.