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Review of Energy Market Frameworks in Light of Climate Change Policies

Australian Energy Market Commission

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AEMC'S REVIEW OF ENERGY MARKET FRAMEWORKS IN LIGHT OF CLIMATE CHANGE POLICIES, SECOND INTERIM REPORT

International Power Australia (IPRA) seeks to provide further comment on the Second Interim Report of the Australian Energy Market Commission's Review of Energy Market Frameworks in Light of Climate Change Policies.

I acknowledge that this submission is late, and apologise for the delay. IPRA has participated in and endorses the submission of the National Generators Forum (NGF), the combined submission of AGL, Hydro Tasmania, International Power, Loy Yang Power and TRUenergy, particularly in relation to the proposed G-TUOS charge, and the submission by the *esaa*. However in addition, following the very successful consultation session arranged by the AEMC on G-TUOS on Monday 17 August 2009, we are prompted to offer further comment for the consideration of the AEMC on some issues that this business considers to be of critical importance.

As Australia's largest privately owned producer of electricity, IPRA is critically dependent on the successful design and function of the National Electricity Market (NEM). From IPRA's perspective, the key issue for consideration by the AEMC under the Frameworks Review is whether the current market arrangements in the NEM (and the SWIS), under the impact of the proposed Carbon Pollution Reduction Scheme (CPRS) and the now-legislated extended Renewable Energy Target (RET), create the right environment for timely investment in generation - particularly base-load generation. This includes the maintenance of asset value imperative to investor confidence. As outlined in its 10 June 2009 response to the Energy White Paper Discussion Papers (attached), IPRA has serious concerns about the ability of the NEM in particular to do this.

IPRA considered that the Frameworks Review presented a unique opportunity for the AEMC to give consideration to some fundamental market design issues that have been questioned by some participants and consultants over time, but which to date had arguably insufficient impact to suggest the need for more radical market reforms. The CPRS and the RET proposals are likely to test the market design fundamentals, both in transition to a lower carbon future, and in managing the changes that ongoing technology evolution will inevitably bring.

Consequently, IPRA was disappointed that the AEMC had distilled the issues around the NEM in the light of the CPRS and the RET to a subset of what might be regarded as minor changes at the margin in response to the most compelling drivers for change in the market's history.

This view is reinforced by the very good submission to the AEMC by the *esaa*, which on a number of fronts, suggest that the Second Interim Frameworks Review report does not address the main critical issues. IPRA supports the submission made by the *esaa* and has therefore given an abridged submission here.

IPRA was encouraged by the approach demonstrated by the AEMC at the G-TUOS session on 17 August 2009, where the AEMC identified that, at least in respect of transmission, the issues were more complex and required more extensive review than had first been envisaged.

Consequently, IPRA has made this current brief submission to suggest that the same level of consideration needs to be applied on a select number of other fronts. In summary, IPRA considers there are three inter-related areas of concern:

- Transmission Risk;
- Market sustainability; and
- System security, given changing plant dynamics and configurations.

1 Transmission Regime

The AEMC's recognition that more fundamental work needs to be done on transmission congestion is welcomed. As indicated at the G-TUOS stakeholder session, IPRA views the issues with transmission as more fundamental than congestion alone; the congestion issue is a symptom rather than the cause of the underlying problem.

As I pointed out at the time, the current transmission regime in the NEM fails to deal in any meaningful sense with generator risk, and its impact on supply-side investment. Under the current NEM arrangements, there is simply no mechanism by which a generator, even through investment in its own interest, can manage transmission risk. This is both an existing, and an ongoing risk for incumbents (which is becoming more unacceptable risk as the frequency of failure and/or congestion increases) and a barrier to new entry, and may in itself distort locational decisions (Because the risk allocation mechanism in the NEM is flawed, and places transmission risk largely with generators, the result may be uneconomic location of new entry at a 'safer' (as distinct from less constrained) site).

Indeed, it is likely that some of the current concerns regarding congestion first arose because the transmission regime did not properly account for the risk to incumbent and new entrant generation. It is arguable that the absence of transmission rights (acknowledging that 'rights' may take different forms) provided the inappropriate locational signals that led to current congestion.

Rule 5.4(a) is the last vestige of the attempt of initial rule makers to create some sort of risk management option for generators. The proposal to remove Rule 5.4(a) is thus of grave concern; rather as suggested by others, the AEMC's focus should be on making the provision work.

IPRA suggests that a number of issues should occupy the AEMC's further consideration of the transmission issue. In addition to the model put forward by generators (and the Southern generators in particular) to manage constraints and locational signalling, we recommend that the AEMC consider other aspects of risk.

For example, the misplacement of risk in the current NEM transmission design led to the need for the NGF to put forward a Rule change designed to some transmission risks by administering prices when the (essentially unaccountable) transmission system failed. IPRA recognises that there is an issue of signalling to generation participants whose role is to insure the market against such an event. However, it is inappropriate to provide signals for investment in peaking capacity to compensate for inadequacy in the signals provided for transmission investment.

Similarly, it is inappropriate to deliver financially punishing price signals to generators behind transmission constraints when they can do nothing to respond, and have no means by which to manage their risk. That is, no means aside from not entering hedging contracts, and leaving the risk on retailers and end consumers. IPRA urges the AEMC to reconsider its position on this matter. This risk has been seen in both planned and unplanned outages of the transmission network including outages caused by fire.

The AEMC should also consider failings of a regulatory test that allows anomalies such as:

- The augmentation of the South Australian southeast transmission corridor at the expense of Victoria-South Australia inter-regional congestion. In this case, the augmentation facilitated better access for SA wind generators¹, but did so at the expense of alternate low-cost energy export capability from Victoria, and at the expense of the ability of SA to export the wind energy eastward;
- The connection of Basslink, which provided the first interconnection between Tasmania and the mainland, without the discipline of assessing its impact on other interconnection, which would have occurred had it been a regulated interconnector. As a result, SA-Victoria and Victoria-NSW interconnection capability is impacted, often via the South Morang F2 transformer constraint, in order to allow Tasmania-Victoria inter-regional transmission; and
- Different approaches to network augmentation between Victoria and other regions. The application of probabilistic planning standards in Victoria, rather than a more deterministic standard, such as $n-1$ ², while theoretically more appropriate, results in disadvantage to Victorian participants, given the risk allocation of transmission failure largely to generators.

IPRA recognises that the AEMC has revised the regulatory test and desires to see how this test works in practice before substantial alteration. However, the time for such assessment is short, and IPRA suggests that the AEMC should detail how it expects the modified test to deal with these risk issues.

In summary, in order to provide a reasonable regime for management of generator risk, IPRA advocates the conditions espoused at Monday's stakeholder session, that is:

- Stronger locational signals for new entrants through charging for augmentations necessary to deliver the level of access sought by the new entrant, without damaging the access level of existing participants. This approach is detailed in Appendix D of the Southern Generators submission, which contains similar elements to some aspects of the AEMC's remote generation connection proposal;
- The fixing of charges for this level of access for the life of the asset in its current configuration; and

¹ And one of IPRA's peaking plants.

² Perversely, the arguably less economic 'n-1' construct may be better for generation while it carries transmission risk.

- An enduring right to this level of access through ongoing application of this model. This also assures existing generators of their level of access, though in some cases, the damage done to accessibility through application of the prior flawed regime may require correction.

In addition, in an environment where it is considered that exposing TNSPs to market prices may not be efficient, IPRA advocates urgent reconsideration of the NGF's earlier Rule change proposal regarding administration of prices to protect generators who are unable to respond in the event that the network fails them.

Finally, IPRA strongly supports the improvement of Rule 5.4(a) to provide a better risk management environment for generation, as opposed to its proposed removal.

2 Market Sustainability

IPRA continues its concern with the sustainability of the energy-only market model (EOM). We note that in the Comprehensive Reliability Review report, and in the supporting modelling studies, the Reliability Panel observed that the modelling demonstrated that the EOM was capable of delivering the target levels of reliability in the NEM, but only in the absence of market distortions. Similar caveats were placed on the reports of consultants for the further studies by the Panel regarding market frameworks in the light of climate change, though these extensive caveats were absent from the final Reliability Panel report.

We note that, in the event, very significant market distortions have been imposed by both state and federal Governments, indicating *prima facie* that the market is at risk of not meeting the reliability standard, on the Panel's own findings. It is unlikely that incremental changes to the level of the Market Cap Price will alter this outcome, and in any event, it is possible that increasing the Market Cap will deter future contracting, given the risk imposed on non-performance to contract under this price.

In the view of IPRA, South Australia is already demonstrating the risks identified by CRA and others for the Reliability Panel. An excessive level of wind generation, relative to demand and transmission capability, is reducing regional prices (including delivery of persistent negative price periods) and hence the viability of current and future new entrant generation. Wind remains uncertain³ and requires the involvement of thermal generation to provide alternative capacity and ancillary services, but the impact of its depression of market prices is to make this supportive plant less viable.

Moreover, as an interim measure, the AEMC is proposing further interventions that involve asymmetrically remunerating non-scheduled demand with payments that amount to a capacity payment (on the basis that the cost is preferable to loss of supply to end consumers) while not offering the same incentive to market participants - whether generation or demand. IPRA would argue that this distortion is *de facto* acknowledgement of the need for some alternative source of revenue to ensure capacity is delivered. It is not sufficient to say that the current conditions are transitory; the NEM design failed to deliver capacity sufficient for Victoria and South Australia on 29 January 2009 before commitment to the CPRS and RET.

In a related issue, IPRA notes that competitive and regulatory forces in the NEM have delivered participant structures tending toward vertical integration. We note that, in principle, a vertically integrated entity is less concerned about wholesale price, because its trade is ultimately between fuel and customer prices. Vertically-integrated entities are less likely to be concerned about depression of prices by subsidised renewables, but independent new entrants are less likely in this scenario.

³ IPRA has direct experience through its IPR relatives in US of near-collapse of the electricity system in Texas as a result of a wind event stopping several thousand MW of wind generation nearly instantaneously on a system as big as the NEM.

In short, IPRA recommends that the AEMC consider again the recommendations of its consultants and the Reliability Panel and reviews the risks to future supply created by the confluence of the EOM, the CPRS and the RET.

3 System Security

IPRA notes the absence in the second interim report of consideration of the system security considerations arising from dramatic increases in intermittent generation, inherently relying local planning authorities and AEMO to ensure security is maintained. The consequences will include increased commitment of non-intermittent generation to supply ancillary services made necessary by intermittent plant, and the reduced utilisation of the transmission network due to the uncertainty of dispatched flows. As indicated above, and in the related footnote, IPRA's related international body has experience that suggests the risks increase, particularly in the event that intermittent generation in the NEM continues to be concentrated in Victoria, South Australia and Tasmania, in which the proportion of energy produced will be greater than the nominal 20% imposed by RET, and the capacity proportion even more distorted to the extent the renewables are intermittent.

IPRA suggests that a holistic modelling of the system, including the transmission necessary to recruit the capacity or demand of neighbouring regions (even if the marginal cost differential does not economically stack up) is required to reassure the market and Government that the RET will not destabilise the market in the long term.

The AEMC may also wish to consider the impact of the CPRS on the plant mix. As some coal exits in response to CPRS carbon price signals (initially seasonally then permanently) and more gas plant and renewable generation enters, there are likely to be issues with system inertia and frequency control. IPRA is aware that ESIPC have been concerned about these issues in SA for some time.

IPRA would welcome the opportunity to discuss these issues further with the AEMC. Contact in the first instance should be with the undersigned, or Mr Patrick Gibbons, Regulatory Policy Manager on 03 9617 8300.

Yours sincerely



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10 June 2009

International Power Australia submission on Energy White Paper Discussion Papers

Please find attached International Power Australia's submission on the Energy White Paper Discussion Papers.

For the purpose of readability, the response is deliberately brief. However, given the range and importance of the issues covered in the Submission, International Power Australia would welcome the opportunity to provide any further detail the Secretariat may require.

In that instance, could you please contact Patrick Gibbons, Regulatory Policy Manager on 03 9617 8300.

Yours sincerely,

Stephen Orr
Commercial Director



International Power Australia

Submission on Energy White Paper Discussion Papers

10 June 2009

Overview

International Power Australia (IPRA) welcomes the opportunity to comment on the six discussion papers released as part of the Energy White Paper consultation process. In doing so, IPRA will specifically focus on the issues impacting the current operation of the National Electricity Market (NEM) and how they can be addressed, with a primary focus on existing and new investments in the electricity sector.

Part one of this submission focuses on the design of the NEM as an energy-only market. Part two discusses the issues confronting the current market design. Part three suggests a number of solutions that IPRA thinks should be considered in the Energy White Paper.

IPRA Background

IPRA is Australia's largest private producer of electricity, producing 24 TWh in 2008 or about 11 per cent of all electricity in the NEM. It has progressively developed its portfolio since 1996 from 1,200MW to circa 3,200MW (equity owned) of diverse fuel and technology generating capacity across Victoria, South Australia and Western Australia. It built and owns the 46MW Canunda windfarm in South Australia, has actively developed 220MW of wind farm sites in Victoria since 2005, and is considering participating in desalination schemes in both South Australia and Victoria¹.

IPR plc owns and operates 1,177MW of wind farms with a further 32MW under construction). This reportedly puts it in the world's top 12.

This portfolio is complemented by the IPRA-owned Simply Energy, an electricity and gas retail business which currently represents around 7-10 per cent of the Victorian and South Australian retail markets.

¹ IPR is the largest privately owned producer of desalinated water in the world (operations are predominately located in the Middle East)

It should also be noted that IPRA led the development and construction of the 687km SEAgas pipeline from Victoria to Adelaide, and it continues to hold a one third equity stake.

IPRA operates the 1,600MW Hazelwood and 1,000MW Loy Yang B base-load power stations in the Latrobe Valley. Together they represent around 40 per cent of Victoria's energy supply.

Since IPRA purchased Hazelwood Power Station in 1996, Hazelwood's emissions intensity has been reduced by 8 per cent which represents 10 million tonnes of CO₂ emissions saved (compared with SECV emission intensity). Over that time, \$400 million has been invested on plant efficiencies and other environmental initiatives. Fresh water consumption has also been reduced by over 45 per cent.

IPRA is committed to building on the substantial improvements it has already made to its Latrobe Valley assets. For example, the Hazelwood 2030 project (with \$80m of Commonwealth and Victorian State Government funding), includes the design and construction of a pilot carbon capture plant currently being commissioned. Although the amount of CO₂ captured and sequestered (in the form of calcium carbonate) may appear to be modest at 16-25 tonnes per day, it will actually be one of the largest such facilities in the world.

IPRA's investments in the Latrobe Valley represent an important component of International Power plc's global portfolio of 33,209MW (21,340MW equity owned) International Power plc operates across 21 countries.

Part 1. National Electricity Market Design

As a result of the microeconomic reform proposed by the Hilmer Report in the early 1990s, the NEM design was finally implemented in December 1998. It followed the creation of the Victorian state based market in 1995 (Vicpool) and the subsequent NSW (Elex) market, and a combined NSW and Victorian market (NEM1 (1997)).

All of these were energy only markets, without any specific capacity payments. Key elements of the design included:

1. Plant mix

The need to balance plant mix requires the market design to allow higher merit order (mid-merit and peaking) plant to set high prices (above short-run marginal cost) at appropriate times to contribute to the fixed costs of high capacity plant. The Value of Lost Load (VoLL) price cap was intended to be set at a level above where significant demand side participation would be incentivised. Additionally, the marginal clearing price was to be at the intersection of the bid/offer stack. (ie, a two sided market).

2. Reliability performance

The electrical system is not 100% reliable and there will always be some probability of involuntary load shedding. Further, a certain amount of involuntary load shedding is economically efficient. As a safety net, the Reserve trader function would signal a market failure, and as such, was codified with a short sunset clause.

3. Transmission

The designers envisaged that transmission arrangements would enable participants to manage their price/volume risks. The transmission system was to be “Open Access” and designed to facilitate economic dispatch. However, the ability to secure firmer transmission rights was envisaged, and is evident in the rules, despite being watered-down. There was an expectation, included in the Code, of regional boundaries reviews and introduction of new regions.

4. Privatisation

Following the Victorian process, there was an expectation (though not imperative to the market design) – along the lines articulated in the Hilmer Report - that the sector would be progressively privatised to form a number of vertically and horizontally integrated business across South Eastern Australia.

5. Investors

The markets were introduced with a large percentage of output hedged by vesting contracts, progressively reducing with the increase in customer contestability. This provided the original investors with some revenue certainty in the initial years. The market design assumed there was a reasonable expectation that investors would achieve adequate returns. Ultimately the market design was carefully assessed to ensure it would deliver sustainable new investment when required.

At the introduction of the market, there was huge interest from international investors. Victorian sale proceeds exceeded \$25 billion in 1996. In hindsight, premium prices were paid for assets, in part as a result of capital being relatively easy to find.

However the reality turned out to be different ...

1. Plant mix

The NEM has not yet reached an optimal plant mix. There are a wide variety of reasons:

- The initial generation mix was sub-optimal, being based on the specific energy policies of individual jurisdictions:

- In some cases, particularly in Victoria, dramatic improvements in plant performance under privatised ownership has perpetuated sub-optimal plant mix; and
- Demand patterns have changed, with increasing bias of load-duration curves toward exaggerated air conditioning peaks.

However, in the initial design the following were also not contemplated:

- Low levels of effective demand side price signalling. This appears to have occurred as a result of a number of factors including persistent low prices for the first several years of the NEM, and the absence of practical means for price to be signalled to end consumers or response to be measured (eg, interval meters). As developed, the market is essentially one-sided, with little demand side participation;
- The high influx of wind generation into the generation mix;
- Investments facilitated or sponsored by Governments, including both renewable and conventional generation;
- Changing policies and regulations, especially with mandated energy policies (discussed below); and
- Reducing number of regions. The dominant view at the time was that the number of regions would continue to increase and thus approximate a nodal market.
- Governments have directly sponsored generation investment, particularly in Queensland; and

Together, these have ensured the market has not reached an “economically optimal” plant mix over the initial 10 years of its operation. IPRA considers the NEM design has yet to prove its ability to deliver large-scale economic capacity.

The large influx of renewable generation is expected to further increase the demand for system inertia and ancillary services. The market is currently not structured to incentivise plant with inertia, and without some redesign, ongoing intervention by the system operator is likely.

2. Reliability

There has been a natural reluctance from Governments to accept load shedding even when it is economic. However against this, there is also a reticence to burden the consumer with the cost of building new capacity (whether generation or transmission/ distribution networks) early enough to avoid involuntary load shedding.

While the Reserve Trader provisions remain in the current national Electricity Law, NEMMCO has rarely used it.

Price volatility is not welcomed. This may be one reason why the Value of Lost Load (\$10,000/MWh) remains lower than the value of customer reliability (\$55,000/MWh) which is used in transmission investment. Also, the market has seen little demand side response materialise. Yet the AEMC’s Reliability Panel only has one lever with which to manage reliability - VoLL and the related Cumulative Price Threshold. This is inadequate.

3. Transmission

Regions

The regional boundaries issue became heavily politicised, particularly in Queensland and NSW. It is well known that, functionally and economically, from the start of the market the Queensland transmission system should have resulted in at least three regions. NECA reviews of regional boundaries were unsuccessful and, arguably, responses were politically driven. Instead of seeing an increase in the number of regions as envisioned, the number of regions was reduced with the demise of the Snowy region.

The Reduction in the number of regions further increases the risk of delivering generation volume to the node.

Transmission Risks

The transmission system is showing significant signs of stress, and misallocation of risk:

- On a number of occasions, transmission failures have resulted in VoLL being set during times of excess generation;
- The transmission system clearly demonstrates its inability to deliver its full capability in “n-1” configurations;
- Most of the extreme FCAS events in the market have resulted from transmission failure, yet generators are required to pay for the services;
- The regulatory test arrangements favour intra-regional investment over inter-regional investment, reducing the capability of interconnectors; and
- Generators are facing more local constraints.

As a consequence, contracted generators face a large and unmanageable risk. They can be placed in a position where they have sufficient generation available to cover their contracts, but are unable to dispatch energy due to transmission constraints and are thus exposed to large difference payments under the contracts. The ultimate result will be a propensity to contract less for internal risk management reasons. Further, at critical times, such as occurred in Victoria on 29 January 2009, end consumers are denied the availability of the capacity in a system under duress.

Transmission congestion risks are unmanageable and are further amplified by the TNSPs interpretation of open access arrangements, where existing generators are not seen as having any defined rights to transmission, or even to maintenance of their initial or current levels of access.

IPRA was initially concerned that the transmission regime would result in uneconomic bias toward investment in transmission (which adds no underlying capacity) at the expense of generation (which does). While a latent risk in the transmission design, this is not presently a concern. On the contrary, particularly in Victoria, where a probabilistic approach to determining transmission investment requirements, transmission

capacity is now insufficient to deliver the capability that underpinned the privatisation value of the generation assets.

4. Privatisation

Privatisation has stalled in NSW, Qld and Tasmania. In addition several state governments own retailers, transmission networks and generation, yet remain active in policy setting for the regulators. This is a real source of regulatory risk that is being weighed up by potential investors. The efforts of Government to create entities that have quasi-private commercial drivers is noted, but there a fundamentally different approaches in areas such as capital structure and community obligation that remain.

5. Investors

Many investors have not achieved reasonable returns on investment and have exited Australia. As noted, this in part was driven by the premium prices paid, but also changed circumstances of parent companies. IPRA, as the longest standing international private investor in the Australian energy sector is a clear exception.

NEM – Success or failure?

Depending on the metric used, the current market design could be perceived as a success to date. There have been no major blackouts to date and some investment has occurred. The market can be argued to have 'squeezed out' value from the excess generation and transmission capacity present in the jurisdictional electricity systems at the time of market commencement. However, the market has not yet proven its ability to consistently provide sufficient revenue to attract future investment in large-scale and base load generation, and to ensure there is sufficient transmission capability to transport it to end customers. With the exception of Queensland, where Government-sponsorship facilitated or directed generation, low amounts of capital were involved in the generation investments that have occurred.

Australia has not experienced wide-spread electricity business bankruptcies. However, it is an open question as to whether the current market design can attract new base load investment.

Part 2. Issues impacting on current operation of the NEM

In answering the question of whether the NEM current design will attract new base-load investment, the following discussion is relevant.

1. Tension between competitive wholesale and regulated retail markets becoming more apparent.

Underpinning Australia's national electricity market has been the provision of competitively priced electricity into the wholesale market. Although there are a range of factors – discussed below – that impede the actual operation of the market price signal, for the most part the competitive wholesale market (for the reasons outlined above) could be argued to have, to date, achieved what it was meant to – the timely delivery of required supply within the prevailing reliability standard. Ongoing delivery of reliability may be quite another matter.

However, an issue that has emerged over a number of years has been the tension between a competitive wholesale and regulated retail markets. This has become more acute over the last two years as the wholesale market experienced greater price volatility due to a combination of drought-related impacts (affecting supply), increasing peak-time demand, tightening of reserve margins and general uncertainty associated with the CPRS.

With the exception of Victoria, the unwillingness of State Governments to relinquish control over the retail prices has meant retail tariffs have been unable to move in accordance with movements in the wholesale market, at least not in a timely fashion. This has contributed a diminution of the market price signal that is integral to driving new investment in the generation sector, and unnecessary risk to retailers.

The introduction of the CPRS will exacerbate this tension. The Federal Government, through its “household assistance package” is shielding consumers from the price rises associated with a carbon price. State Governments, via their control over retail prices, will seek to minimise any retail price rises.

Effectively, this represents an increase in regulatory risk that is being priced by potential investors in the Australian energy sector.

2. The mish-mash of inconsistent mandated energy policies

Contributing to the regulatory costs and risks facing the electricity sector is the plethora of Federal and State based mandated energy policies. These include the Federal Government's expanded Renewable Energy Target, the Victorian Renewable Energy Target and Energy Efficiency Target, NSW's Greenhouse Gas Abatement Scheme and Queensland's 13% Gas scheme.

The intent has been to dictate an outcome that achieves a range of policy aims that not consistent with the key focus of the NEM – providing electricity to end consumers in a least cost manner.

Governments have sought to justify these as either addressing market failure or promoting industry development. In both cases, little evidence is provided to substantiate either assertion. This has been explicitly accepted by the Wilkins Review.

Moreover as the Australian Energy Market Commission's Reliability Panel's Comprehensive Reliability Review report notes “(Q)uantitative modelling indicates that spot prices would be just sufficient to signal the

need for new investment in the next three years in the absence of distortions due to the influence of external policy mechanisms such as greenhouse measures or retail price caps. Where such distortions are present they could give rise to delays in the introduction of new generation.”² The cost of these policies may therefore ultimately be in system reliability.

The end result is that the Australian electricity sector faces a mish-mash of inconsistent and, in some cases, counter-productive policies that is testing the operation and effectiveness of the energy-only market design that promised so much.

IPRA is not arguing against the pursuit of renewable policies or energy efficiency – rather, it is arguing that Governments must be aware that these policies introduce distortions that hamper the NEM’s ability to operate efficiently to deliver ongoing secure and low cost energy to consumers through timely attraction of investment.

These distortions then require other distortions in an attempt to manage them; for example the need to increase the level of VoLL beyond what would otherwise have been required, and the need to increase the capability of the Reserve Trader (now RERT) functions. However, the ultimate performance of the NEM is placed at greater risk as a result.

The Federal Government’s expanded Renewable Energy Target will again test the NEM’s capacity to adapt. In particular, the expected source of much of the additional renewables capability will come from wind, much of it concentrated in good wind regime areas such as the southern and eastern states. This concentration will carry with it the potential, under certain conditions, for wind to rapidly change in contribution to NEM energy delivery, requiring increasing levels of ancillary services.

The current definition of ancillary services does not include the cost of back-up generation, nor the cost of system inertia. These costs will be increasingly substantial.

These ancillary services must be paid for by the wind generation that causes the need, or further distortion of investment signals will result.

The same is true of connection of remote renewables such as geothermal energy. Governments may be tempted to subsidise these connections, but this effectively ‘picks winners’ and is value destroying for other assets installed in the market in good faith.

The NEM’s design is premised on the energy-only market providing a rational investment signal. It is a relatively fragile construct that balances a range of investment drivers. Government-incentivised or mandated distortions upset this balance, there by undermining the NEM investment objective. Reforming this area of NEM implementation should be a major focus of the Energy White Paper.

3. Transmission – The sleeper issue

Transmission is now one of the biggest and most difficult issues confronting policy makers. Implicitly it was believed that investment in

² Australian Energy Market Commissions, Comprehensive Reliability Review Final Report, December 2007.

transmission and generation were discrete elements that were mutually sustaining. This assumption is seriously under challenge. The inability of generators to effectively deal with the increasingly unmanageable risks posed by transmission congestion is stymieing new investment in the generation sector.

Transmission congestion risks are likely to be significantly increased due to the changed merit order (as a result of the CPRS) and large influx of renewable generation, most of which is expected to be intermittent.

At the same time, the cost of transmission and distribution network failure is becoming more apparent. The recent events in the Sydney CBD are just the latest examples of the real risk posed by under-investment in the transmission and distribution networks. Over the last two summers, Victoria and South Australia's transmission and distribution networks reached their physical limits.

At the core of the issue is a transmission regime that:

- Applies a relatively narrow definition of economic benefits. The test only considers cost in terms of increased marginal cost of generation. The regulatory test ignores the broader costs of transmissions failure (including wealth transfers which have major impacts on affected generators);
- Provides different standards for transmission investment in some jurisdictions to others; and
- Fails to provide surety of the availability of transmission services to generation, with or without payment by the generator.

Adjusting the regulatory test to incorporate the potential cost of transmission failure and limitations is a simple solution that will encourage new transmission build in the short term.

The benefits of this approach would be to enhance reliability by providing the right incentive to attract the required investment when needed. Second, it mitigates some of the congestion issues that are increasingly stressing the NEM, particularly by reducing the risks faced by generators. Finally it would allow for a more economic incorporation of renewable energy.

While the cost of network augmentation is borne by consumers, it should be viewed as the price of enhanced reliability of both the transmission/distribution networks and generation system. In any case, it will be lower than the cost arising from network failures and congestion.

A number of these problems would be alleviated if fixed transmission access rights for existing and new generators were allowed. It would provide the cost and access certainty that generating plant requires.

4. *Impact of the Carbon Pollution Reduction Scheme*

IPRA has consistently supported a properly designed emissions trading scheme. The current design of the Carbon Pollution Reduction Scheme does not meet that standard. The CPRS as currently designed will not ensure there a smooth transition for the stationary energy sector.

The main issue with the CPRS is the lack of adequate compensation for asset value destruction. IPRA has provided clear advice to the Federal Government of the far-reaching implications of the proposed CPRS, including sovereign risk due to the change of law, financial distress, and ultimately risk to electricity security and reliability.

Instead of encouraging new investment in the stationary energy sector, the CPRS is acting as a major impediment to new investment. The willingness being displayed by Government to deliberately destroy the value of existing generating assets has been noticed by international investors. Investment in the Australian energy sector is now viewed as more risky than that of developing countries. Some Australian businesses and banks are in the process of exiting the sector.

Given the scale of the investment challenge ahead, not only in terms of new investment but also of refinancing existing investments – estimated to be \$100 billion by 2015³ – the Government should be fundamentally concerned about the adverse impact the CPRS is already having on investment in the sector.

This real problem is not, as some in Government have suggested, simply a consequence of the Global Financial Crisis. These issues were apparent well before the full force of the GFC struck Australia. The GFC is compounding these problems; but it is the CPRS that is primary cause of them. However, the GFC means investors and project financiers are more risk averse, capital is scarce and Australia competes for capital internationally.

From IPRA's perspective, the problems could easily be resolved if the Government adjusted the settings of the CPRS. Specifically, the level of assistance provided under the Electricity Sector Adjustment Scheme is seriously inadequate. In the first ten years of the CPRS, generators will provide Government with about 2 billion permits, yet ESAS only provides for 130.7 million permits.

To put this in perspective, electricity generators will be allocated 13% of their emissions in the first five years, and none thereafter. In contrast, the European Union's emissions trading scheme provided 100% allocation in the first five years of their scheme, and then phased down over the following 10 years. The proposed American Clean Energy & Security Act 2009 (Waxman-Markey Bill), merchant coal generators will receive around 50% allocation for 18 years. Put simply, the level of assistance and transition time provided for under the CPRS is at odds with what is happening internationally.

Providing adequate assistance to generators will allow for a smooth transition. Destroying generator asset values – as the CPRS does - is not required for an effective emissions trading scheme. Indeed, it will be counter-productive.

³ Energy Supply Association of Australia, Global Financial Crisis and the energy supply sector, April 2009.

5. End Result?

The latest summer highlighted the real challenge for the supply of electricity in Australia. The heat wave that enveloped south-eastern Australia in late January and early February saw for the first time a lack of installed bulk supply system capability⁴. Admittedly these were extreme weather events, but they were not unforeseeable. They were within NEMMCO's 10% POE demand forecast. And given the material increase in peaking demand, incremental rise in base-load demand, and lack of new generation investment, they will occur again.

And if the CPRS causes – as has been argued by the sector – the premature closure of plant before replacement plant is available, the demand/supply situation will be acute. This is especially the case in Victoria and South Australia. Alternately this situation could lead to a cascading set of interventions under the reserve trader arrangements and result in a complete failure of the NEM, whereby generators operating under the RERT arrangements are unable to contract into the market, thus causing retailers to fail.

Part 3. Way Forward

The above represents a pessimistic view of the Australian energy market. It reflects the real-world experience of International Power as Australia's largest private sector generator. The current NEM energy-only market design is at a crossroad.

While there are no easy solutions, IPRA would like to suggest four main areas which should be addressed in the Energy White Paper.

1. Change the design of the CPRS to ensure that a smooth transition to a low carbon economy is achieved. This involves ensuring adequate compensation for the loss of asset values arising from the introduction of the scheme.
2. Refocus the application of the Regulatory Test so that the cost of transmission/network failures is more holistically accounted for. In other words, give greater weight to the reliability arm of the Regulatory Test.
3. Provide for transmission rights for existing and new generators.
4. Given the difficulty involved in unwinding many of the mandated energy policies, allow for market trading arrangements more tolerant of such policies. The development of capacity payments in the NEM should be examined as a prime candidate but in conjunction with other arrangements. This would encourage the building of new generating capacity when required.

⁴ We note that contrary to popular perception, load was shed in Victoria before Basslink tripped, so supply-demand imbalance initially occurred while Basslink was in service.

The above represent a radical change from the initial design of the NEM as an energy only market. But IPRA strongly believes that the NEM has been stressed to such a point that the failure of the market is threatened in the medium term. The above four suggestions provide a way to avoid the real risks confronting Australia's energy consumers.