State of the energy market

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Introduction

Thank you for inviting me to speak at energy 21, and for the opportunity to offer some perspectives on the state of the energy sector—which is certainly undergoing dynamic change. While this session focuses on energy networks, it is difficult to talk about the networks in isolation. Energy networks are designed to transport energy to users and consumers—and the generation and consumption of energy impacts directly on network design.

Consequently, I propose to cover activity in wholesale energy markets as well as the networks. The link between the two is the end customer. Ultimately the performance of the whole industry is judged against efficient service delivery at efficient prices to energy users.

Price pressure

As you are aware, energy customers—both large and small—have raised concerns in recent months about rising energy prices. In May 2009 the NSW regulator IPART announced that retail electricity prices would rise by around 20 per cent for small customers not on a market contract. About half the increase was due to higher network costs.

In the past year or so network charges have become a major driver of rising energy prices. This is an interesting turnaround from a couple of years ago, when retail price pressure stemmed mainly from the wholesale market. In 2007, drought conditions in the eastern states caused significantly higher spot and forward prices for electricity and gas, which in turn flowed through to the retail market. Uncertainty about climate change policies was also leveraging forward prices higher.

Price pressure in the wholesale market has eased in the last 18 months or so. While spot electricity prices rose in Tasmania in 2008–09, they fell in other regions of the National Electricity Market.

It was interesting to note that the Australian Government's decision in May 2009 to delay implementation of the proposed Carbon Pollution Reduction Scheme to July 2011 led to an easing of forward prices over the period of the delay. This suggests the market had generally factored the scheme's introduction into forward prices. It will be interesting to see how the recent uncertainty about the scheme affects contract prices over the coming months. The bottom line here is that carbon policies are already impacting on the market, with the largest cost likely to be the negative impact on investment caused by uncertainty.

Market power in the National Electricity Market

An emerging concern is that over the past couple of years we have seen an increasing incidence of generators exercising market power in the electricity market. This is not an everyday event. Indeed, the market was designed to minimise the risk of market power through an interconnected grid that allows competition between generators as far flung as northern Queensland, Tasmania and South Australia. Significant investment in networks, including regional interconnectors, has made this possible. The national market—covering all but Western Australia and the Northern Territory—is now fully aligned around 70 per cent of the time. While network congestion and other factors lead to some market separation, it is not usually severe.

But there are circumstances where a generator is required to be dispatched within a particular region and can easily exercise market power. This is most evident at times of peak demand, and typically on days of extreme temperatures. The opportunities for market power are further enhanced if part of the power system—for example, an interconnector—is constrained. This scenario can result in an islanded market with high demand and tight supply.

In a relatively concentrated market, and given the “pure” nature of the electricity market, this can lead to significant opportunities for price gouging.

I will refer to three examples over the past couple of years. The first was in June 2007, when a combination of drought, plant outages and cold weather led to a tight demand–supply balance in New South Wales. While there was no evidence of a breach of the market rules, Macquarie Generation took advantage of market conditions by bidding around 20 per cent of its capacity at above $5000/MWh during the peak 5 pm to 7 pm period. It was typically offering the same capacity at less than $500/MWh at other times of the day. This led to average June quarter prices in NSW hitting a NEM record of $146/MWh.

More recently, concerns about opportunistic bidding have centred on two other regions of the NEM—South Australia and Tasmania.

Price spikes in South Australia have been a feature of the past two summers. A significant proportion of South Australia’s electricity is sourced from Victoria via transmission interconnectors. The South Australian market was changed in December 2007 when Electranet reduced the maximum allowable flow on the largest interconnector by around 25 per cent. This limited the supply of low cost electricity from Victoria.

From January to March 2008—and again in early 2009—high seasonal demand and reduced interconnector flows allowed AGL to alter its bidding strategies for its Torrens Island power station—which accounts for 40 per cent of South Australia’s generation capacity. One strategy was to bid around 900 MW of capacity at around the price cap if demand was high. South Australia can source around 2500 MW from other generators and the interconnector, but beyond this Torrens Island must be dispatched. AGL was often setting prices around the market price cap of $10,000/MWh at these times.

In the March 2008 quarter South Australian electricity demand exceeded 2500 MW in 230 trading intervals. Prices exceeded $5000 in 51 of these intervals. This led to March quarter prices in South Australia hitting a new NEM record of $243/MWh— topping the New South Wales peak I mentioned earlier.

The extent of price gouging activated the cumulative price threshold. This imposes administered pricing if the cumulative spot price over a week reaches $150 000. Without the threshold—and the threat of its further activation—the number of extreme price events would almost certainly have been significantly greater.

So far in 2009, spot prices have exceeded $5000/MWh on 27 occasions in South Australia. This has accounted for around 50 per cent of all high price events in the NEM this year. The bidding behaviour of AGL has been a contributing factor on at least several occasions. The events have typically occurred on days of hot weather and/or reduced import capability on the interconnectors.

More recently, market bidding strategies have emerged as a concern in Tasmania. Since 1 June 2009, the Tasmanian spot price has exceeded $5000/MWh on 13 occasions. None of the spikes were forecast. They occurred when Hydro Tasmania made sudden and repeated cuts in the output of its non-scheduled (mini hydro) generators—forcing the dispatch of higher priced generation in its portfolio. The strategy was so sustained it led to administered pricing being applied for four days in June—the first time ever for Tasmania.

These unpredictable price spikes affect customers that buy electricity directly from the market (such as large industrial customers), the retailer (Aurora Energy) and potential new entrants. Large energy users trying to engage in demand management have been frustrated by these events, which include sudden spikes at off-peak times.

Tasmania also experienced extreme prices for raise contingency frequency control services in early April. The Tasmanian regulator OTTER has given notice of its intention to declare the supply of these services, which would enable it to regulate prices. The AER supports this proposal—but it does need to be handled with care. Any solution should not be onerous on participants or add further complexity to the dispatch process.

In a competitive market, sustained above-competitive pricing will attract new entry to take advantage of opportunities for profit. But the response may be muted if high prices are more a reflection of an incumbent's ability to exercise market power and control outcomes in a way that damages potential competition.

It is important to note that offering capacity at above-competitive prices is not a breach of the Electricity Rules. In fact, the rules explicitly leave the regulation of anti-competitive conduct to the Trade Practices Act.

It is sometimes argued—mistakenly—that the rebidding rules provide a means for the AER to regulate the misuse of market power in the electricity market. In particular, the rules require that generators make all bids and rebids in 'good faith.' This is not the time or place to discuss the legal interpretation of the good faith provisions. It is apparent that generators may have any number of motives for changing their bids. In some instances it is fairly obvious a generator is finessing above-competitive pricing during periods of transitory market power.

However, the rebidding rules are not aimed at regulating the misuse of market power. Rather, they aim to achieve timely and accurate dissemination of information to promote efficient dispatch and spot price outcomes. In particular, the provisions aim to avoid last minute rebids when market conditions are unchanged, to allow other parties to respond efficiently. In this sense, the rebidding rules are the mechanism the rules rely on to ensure transparent and efficient dispatch.

In May 2009, the AER published the results of a comprehensive investigation of AGL's rebidding behaviour in South Australia in February 2008, and found there was no breach of the rules. More recently, the AER has instituted proceedings in the Federal Court against Queensland generator Stanwell, alleging that Stanwell did not make several of its offers to generate electricity on 22 and 23 February 2008 in 'good faith.'

To sum up, the National Electricity Market is a well designed market that allows participants commercial freedom to choose their price risk exposure in spot and forward markets. Most of the time it also provides efficient price signals for new investment. But the market relies on genuine competition. It is not designed to cope with highly concentrated generation markets and sustained and substantial market power.

As mentioned, the rules leave regulation of anti-competitive conduct to the Trade Practices Act. The AER assists the ACCC to monitor conduct in the wholesale electricity and forward contract markets in the context of section 46 and will continue to do so. But questions remain as to how readily applicable these provisions may be to the type of market conduct issues we have recently seen in electricity. Section 46 focuses on long run outcomes and requires a test of purpose rather than impact. How relevant these thresholds are in a market with the unique real time characteristics of the NEM is uncertain.

Gas markets

Before moving on to network issues, I should talk briefly about recent developments in gas. In the last few months there appears to have been a short to medium term softening in gas demand on both sides of the country. In Western Australia, weaker global energy prices have led to a fall in LNG export prices and taken some pressure off domestic prices. On the east coast, Victoria's spot market provides the most transparent price signals. Spot prices averaged $2.68/GJ for the June 2009 quarter, down 19 per cent on last year's June quarter.

Activity is strong in the increasingly deregulated gas transmission sector, which is taking a longer term view. The commissioning of the QSN Link and expansion of the South West Queensland Pipeline in 2009 have brought Queensland into an interconnected pipeline network spanning Queensland, NSW, Victoria, South Australia, Tasmania and the ACT. Climate change policies, new gas-fired peaking generators and Queensland's burgeoning coal seam gas industry are driving this investment.

We can expect further dynamic change in east coast gas markets with the development of several CSG-LNG projects around Gladstone in the next few years. While this may increase wholesale prices in the longer term, EnergyQuest predicts in the AER's forthcoming *State of the Energy Market* report that domestic prices may ease during the lengthy ramp up of LNG export capacity.

While upstream gas is a lightly regulated sector, there have been significant developments to enhance transparency. The Gas Market Bulletin Board, which began in July 2008, provides real-time and independent information on the state of the gas market, system constraints and market opportunities. To complement it, new spot markets for short term gas trades will begin next winter. The first markets will be based around the Sydney and Adelaide hubs. While the markets relate to gas for balancing purposes, they will provide some transparent price guidance for the market as a whole. Any move to greater depth in short term gas markets will better enable Australian energy markets to maximise the benefits of any “surplus” gas associated with developing gas export projects—and contribute to a more flexible electricity market.

Regulated networks

There are a range of challenges ahead for the network sector—for example, the increasing penetration of embedded generation, enhanced licensing and reliability requirements, the relentless growth in peak demand for air conditioning, and for many networks, the problem of aging assets.

Climate change policies

Perhaps the most significant challenge will be how to manage the effects of climate change policies. The expanded Renewable Energy Target and proposed Carbon Pollution Reduction Scheme will significantly affect the market. The major challenges for the networks include:

- How best to coordinate the connection of new remote generators, such as new wind generators, to the network— for example, how to get connection assets built to an efficient scale to accommodate future generation capacity. Under recent AEMC proposals, transmission businesses will size network extensions to remote generators to accommodate anticipated future needs, with customers underwriting the risk of asset stranding. The AER will have a role in ensuring consumers’ interests are protected.

- How to get better locational signals for new generation investment to avoid significant increases in network congestion. Recent proposals centre on a form of generator transmission use of system charge.

The challenges associated with introducing climate change policies are not limited to the network sector. Wider questions for the market include:

- Will climate change policies lead to short term generation capacity shortfalls? There are proposals to strengthen the current reliability mechanisms in response to this risk—for example, providing more flexibility for the market operator (AEMO) to procure reserve generation capacity. There are also proposals to enhance demand side responses.

- How to manage potential issues such as inertia and voltage control requirements from greater penetration of intermittent generation. More generally, an increased reliance on wind and the wider use of small solar photovoltaic systems will lead to greater variability in flows across the networks, posing challenges for reliability and power system security.

There have also been policy responses to enhance network management in light of growing peak demand. The AER has introduced a demand management innovation allowance, which encourages network businesses to consider non-network augmentations. The scheme allows businesses to recover implementation costs and foregone revenues from introducing demand management measures.

Another response is the roll out of smart meters and—potentially—smart grids. Smart meters allow energy customers to see the real time cost of their consumption. When combined with appropriate tariff structures, they can reduce peak and overall demand. The Council of Australian Governments has committed to a national rollout of smart meters where the benefits outweigh the costs. Victoria and New South Wales have already committed to a rollout. Last month, the AER released a draft determination on the basis for Victorian distribution charges to small customers to recover the initial rollout costs.

Smart grids take the concept of smart meters further towards direct control of load, the use of communications technology to rapidly detect and switch around faults to minimise supply disruptions, and the integration of embedded generation that can be switched on and off to support the network. The Australian Government recently committed $100 million for a trial of smart grid technologies.

Rising investment and operating costs

I mentioned at the start of this talk that network services have recently become a significant source of price pressure. The key drivers are substantial increases in capital and operating expenditure. Under recent AER determinations the NSW and ACT distributors (EnergyAustralia, Country Energy, Integral Energy and ActewAGL) will significantly increase these outlays over the next five years.

Distribution investment will rise by around 80 per cent for the NSW distribution networks and 66 per cent in the ACT network. In total, the AER determinations signed off on over $14 billion of distribution investment for NSW and the ACT over the next five years.

There is a similar story in transmission, where investment will rise by 73 per cent in NSW and 57 per cent in Tasmania.

Several businesses have challenged aspects of the AER determinations in the Australian Competition Tribunal. In part, the appeals relate to inputs in calculating the weighted average cost of capital. The businesses are seeking a return on capital that would increase their revenues by around $2 billion over the five year regulatory period. The Tribunal is currently considering the appeals.

The Queensland and South Australian distributors submitted their regulatory proposals in July 2009. In South Australia, ETSA proposed a 127 per cent increase in capital investment compared to the current regulatory period. In Queensland, Energex and Ergon Energy have proposed capital investment increases of around 50 per cent. In total, this would involve more than $15 billion of investment by Queensland and South Australian distributors over the five year regulatory period.

The drivers of these substantial increases include:

- enhanced licence or network requirements (including reliability standards)
- the replacement of ageing assets
- rising peak demand.

Energex estimates that around 40 per cent of its new investment relates purely to improved security of supply. More generally, all networks face the issue of needing to build capacity to keep air conditioners running on a handful of very hot days each year. As this capacity is mostly underutilised, this challenge highlights the likely benefits of effective demand management programs.

There are signs of similar trends in gas. The AER has just received the first access arrangement revisions in gas distribution—for New South Wales and the ACT. As in electricity, the proposals encompass significant increases in investment and operating expenditure. Jemena has proposed a 63 per cent increase in investment for its NSW gas networks and ActewAGL proposed a 227 per cent increase for the ACT.

In addition to step-increases in capital spending, operating and maintenance costs are also rising across the networks. While these costs are rising less sharply than capital spending, the increases are nonetheless substantial.

With network costs accounting for around 50 per cent of retail prices, rising capital and operating expenditure will flow through to significant retail impacts. Higher distribution charges will increase the average residential electricity bill for 2009–10 in NSW by $1.40 to $1.50 per week and $0.94 per week in the ACT.

ETSA's regulatory proposal would increase distribution charges in South Australia by around 6–7 per cent per year for a small residential customer and 10 per cent for a small business customer. The Queensland proposals would increase distribution charges by around 10 per cent in the first year, followed by annual increases of around 4 per cent.

Conclusion

Ultimately energy customers will pay for increases in capital and operating expenditure, and it is part of the regulator's role to ensure they receive value for money. I think there is also a role for network businesses to communicate more effectively with customers about the benefits they are receiving for higher energy prices.

In particular, most customers are experiencing stable or improving reliability, at a time when some network assets have become degraded. If rising investment translates into more secure networks and enhanced reliability, this is a message that needs to be sold. Similarly, the AER would like to see distributors actively market 'smarter' solutions to rising peak demand. Demand management has many benefits for consumers—from deferring capital expenditure, to offsetting the needle peaks in energy demand—but the benefits to date may have been undersold.

The roll out of smart meters and smart grids will pose new challenges for the network sector, but should further enhance the quality of network services. The current AEMC review of a national framework for distribution planning may also pose new challenges, but can potentially lead to significant efficiency benefits.

But perhaps the greatest challenge of today is to ensure the energy generation and network sectors can adapt as quickly as possible to climate change policies, when fully implemented. While these policies may impose some costs, I am confident the current electricity and gas market arrangements will deal with the issues efficiently. However, at this point of time there are two qualifications to this:

- First, uncertainty about climate change policies, and the CPRS in particular, is already having an impact on electricity markets and is deterring new investment in efficient generation. Given there are already market power problems in the generation sector, delays in new investment are likely to impose substantial costs.

- Second, even if the first point is addressed and current investment uncertainty is alleviated, it may take some time for new investment in generation to render legacy market structures in some regions more competitive. If current market power problems become entrenched, new policies in market structure or regulation may be needed to ensure the energy sector best serves the needs of customers.

Thank you.