

EUAA Energy Price and Market Update Seminar

Perspectives on energy prices

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6 June 2007

Introduction

Thank you for inviting me to speak at the EUAA seminar on energy prices. The seminar is certainly timely, given the nature of price activity over the last couple of months.

I will focus in this presentation on recent price activity in the markets. First, however, I'd like to begin with a few words on the Australian Energy Regulator and its role in the energy sector.

Background: the AER

Contrary to the impression you might get from some media reports, the electricity sector is in infinitely better shape than it was ten years ago. The old regulatory barriers to interstate trade have been removed. There is third party access to the networks. The old public monopolies have been split up and competition introduced in generation and retailing. Victoria, South Australia and Queensland have privatised some or all of their electricity supply.

These changes have allowed competitive energy markets with a national focus to develop. The eastern states established the National Electricity Market (NEM) to allow power to flow across state borders to meet demand more efficiently. Over the last eight years new investment in generation and transmission, combined with the national market arrangements, have improved productivity and provided stable reliability. Over the long term the market has also delivered significantly reduced energy costs for business customers.

Governments are progressively transferring the regulation of the energy sector to the Australian Energy Regulator (AER) to deliver a consistent national approach. The AER was established in 2005 as a part of the Australian Competition and Consumer Commission (ACCC), but operates as a separate legal entity. The AER will assume

responsibility for the economic regulation of the NEM energy sector on a staged basis over the next two years. It has been the regulator of the wholesale market and transmission networks in the NEM since July 2005. The regulation of electricity distribution networks and non-price retail functions is scheduled to transfer from the states to the AER over the next year or so.

In regard to the wholesale market, the AER monitors the compliance of market participants with the National Electricity Law and Rules, and investigates and prosecutes breaches. This requires very close monitoring of wholesale market activity, including rebidding behaviour, and the conduct of around 24 compliance audits each year. The AER provides extensive reporting on outcomes, including weekly and quarterly reporting on market activity, investigations of market incidents, and reporting on prices that exceed \$5000 per megawatt hour. The reporting focuses on potential Rule breaches, but also comments on behaviour that may not be consistent with the objectives of the market.

While the AER has no regulatory role in the forward market for electricity derivative contracts, it monitors and reports on those markets because of the linkages with the wholesale market. In July, the AER will publish its first report on the state of the energy sector as a whole. This comprehensive report will cover the wholesale and financial markets for electricity, as well as the networks, retail and gas markets.

Wholesale price activity

As you are aware both the wholesale and forward electricity markets have recently behaved in what—at first glance—might appear to be an abnormal manner. As I will explain shortly, the markets are in fact behaving largely as they should in the current environment. Our market monitoring suggests that what we are seeing is mostly a normal market response to what we hope is a short-term phenomenon — the consequences of prolonged drought.

First, let's look at the facts. Over the past eight weeks or so, spot prices have been unusually high. Prices this quarter have averaged \$70 per megawatt hour compared to around \$25 in the same quarter last year. This is particularly unusual for autumn, when prices are normally subdued due to relatively low demand.

In Queensland, for example, prices over the last two months have mostly been in a \$40—\$100 range, compared to around \$20 last year. It is worth noting that we are not seeing large spikes of \$5000 or above here. Rather, we are seeing persistently high—but reasonably consistent—prices.

Forward prices

These trends are flowing through to higher prices in the forward market for derivative contracts. Forward prices for base and peak contracts have risen for all quarters through to 2010. Prices are particularly high in Q3 and Q4 2007—normally relatively low price periods. Prices are also high in Q1 2008—most markedly in Queensland. There are signs of improvement from Q2 2008, which continue into 2009 and 2010, allowing for the normal summer peaks. For example, while the NSW forward curve is significantly higher than it was 12 months ago, it shows a gradual convergence back to more normal conditions over the next two or three years.

A different perspective on contract prices is to consider year-ahead base futures prices. Because this reflects a whole calendar year, it removes seasonal impacts, and tends to be relatively stable over time. The data reflects a slight increase in prices in the four years to 2006, followed by an astonishing rise in the second quarter of 2007. While this is a somewhat frightening chart, there are some recent indications that the upward spiral may have peaked. Prices nonetheless remain volatile.

Who has been affected?

The burden is falling unevenly on electricity users. Price caps limit the flow on effect for residential and small business users. Retailers are substantially hedged, so the impact of higher prices on them is limited in the short term. However, if high spot and futures prices persist for extended periods their costs will come under pressure as contracts come up for renewal. So far, big business has probably been the most affected. While most are hedged, many have less diversified risk than the retailers. Some businesses may have all of their electricity contracts up for renewal at the one time.

Why are prices high?

So, what is causing high prices?

Demand is comparable to this time last year, so that is not a factor. Instead high prices over the last two months have been driven by tight supply conditions. The key factors are drought and maintenance. I'll comment first on the lesser factor—maintenance.

Maintenance

Generators undertake most of their maintenance over autumn and spring when demand is relatively low. The data shows that generator capacity is lower than last year because more plant than usual is out for maintenance. About 700 MW more capacity than last year is out across the NEM (just over 1.5 per cent of NEM capacity). The majority of the reduction is for plant in New South Wales, although this has been partly offset by new capacity in Queensland (at Braemar). Users have expressed concerns that the high level of capacity down for maintenance cannot be justified. The AER is investigating this claim.

Overall, however, maintenance has had some impact on spot market prices, but is a second order factor.

Drought

The key factor has been the drought. This has affected generating capacity in at least four regions of the NEM—Snowy, Tasmania, Victoria and Queensland. The most direct impact has been on hydro-generation in the Snowy, Victoria and Tasmania. Low water levels in dams are reducing the amount of electricity that hydro generators can produce. Snowy is at less than 13 per cent capacity (which is around 8 per cent of active capacity). Tasmanian hydro generation is at around 19 per cent of capacity, and Southern Hydro in Victoria is virtually out of water. As a digression, it is worth noting that the Basslink cable to Tasmania has significantly helped the situation in that state. Imports into Tasmania since 2006 have totalled 14 per cent of Tasmanian demand.

The loss of effective capacity has translated into output reductions. Snowy output is around 13 per cent lower than in Q2 2006. The reduction is not as dramatic as might be expected—Snowy rarely operates near capacity—but its costs have increased significantly. Snowy is now pumping water to deliver around a third of its output, which has a direct cost of around \$43 per megawatt hour, and involves a 30 per cent efficiency loss.

The hydro generators have responded by reducing the amount of electricity they dispatch at low to medium prices. Snowy has historically bid in significant capacity at \$20—\$50 per megawatt hour. But in May 2007 Snowy bid in 1400MW less capacity at under \$50 per MWh than it offered in May 2006. A similar story is evident for Tasmania and Southern Hydro. This has had flow-on effects across the NEM, with generator offers at prices below \$50 per megawatt hour down in total by around 5000 MW this year compared to 2006. This trend is also evident in daily offer prices, which show a significant reduction in low priced capacity from late March. The change is most evident in the Snowy, Tasmania, Queensland and NSW, and encompasses hydro as well as coal plant—which I now turn to.

The drought has also impacted on the availability of coal plant. While some coal plant is air cooled (such as Millmerran and the new Kogan Creek plant) and others use sea water (such as Gladstone and the South Australian generators), most coal plant in the NEM uses fresh water for cooling—often from urban water supplies. The Victorian generators use almost as much water as residential users in Melbourne.

In Queensland water shortages have reduced output by around 8 per cent of regional capacity—mainly at Swanbank and Tarong. While the affected plant can still be used at times of very high demand to ensure security of supply, at present they are not running. The loss of this capacity is reflected in changed bidding patterns among the Queensland generators.

The sharp increase in forward prices is more difficult to explain. High prices through to autumn 2008 are consistent with claims by large energy users that contracts are more difficult to obtain. But the increase is also consistent with the market factoring in the risk of persistent drought. There may be additional factors at play here, including the possibility of over-correction. Electricity financial markets are still relatively new and this is the NEM's first major widespread shock. These markets are maturing quickly. But it would not be surprising if inexperience is leading to sharp responses and corrections from time to time.

Is market power an issue?

In the current conditions there is the risk of market power issues emerging. The bidding data certainly shows that generators are responding to tight supply conditions

by bidding into higher price bands. For generators that are constrained by water-related issues this may be a genuine reflection of higher costs. In addition, other generators that do not face cost pressures may be able to take advantage of the general shortage of low-cost generation by raising their bid prices. In the short term, this is a normal response in a competitive market, and provides signals for new investment in generation capacity. In the longer term a scenario of persistent high prices above new entrant costs—with no investment response—would raise serious market power concerns.

In the short to medium term the AER is monitoring two issues. First, has there been a breach of the rebidding rules? The rebidding rules require the generators to bid in good faith. The AER monitors bidding and prices very closely and should pick up any contravention of the rules. The monitoring suggests that to date, bidding and price activity have been consistent with tight supply and cost conditions. So far the AER has not detected any breaches. The new ‘good faith’ provisions seem to be working reasonably well, and we have not seen evidence of unusual rebidding by generators. But this is an area that the AER will continue to monitor very closely over the coming weeks and months.

Second, the AER has not seen any evidence of collusion between generators. Any collusion would be a breach of section 45 of the TPA and would be prosecuted by the ACCC if evidence was available. The penalties under the TPA are substantial—up to \$10 million.

Market structure issues?

Over the past few years, the ACCC and AER have expressed concerns about existing or potentially developing anti-competitive market structures in the NEM. Concerns have focused on risks associated with:

- concentration in generation which may led to market power problems in spot and contract markets
- trends toward vertical integration that lead to concentrated generation markets and a loss of liquidity in contract markets.

Users have claimed that market structure problems are exacerbating the effects of the drought. While this is possible, there is little evidence that market structure concerns are a substantial driver in current spot and contract market outcomes.

Outlook

So, what is the outlook for prices? In the short to medium term we are at the mercy of the weather. If the drought continues there will be ongoing price implications. The risk is that more coal plants will have their output restricted by a lack of water for cooling. The impact is likely to be on price, rather than reliability. Summer peaks can be predicted several days in advance, allowing time to start up plant that is restricted in its use of water for cooling. There have been no indications that plant would be forced to shut down through demand peaks.

Further, there are indications that tight supply conditions might prevail until late this year—even with good rainfall. Snowy's main flows are in October and November when the snow melts. Until then its output will be severely limited and its bidding will remain in relatively high price bands. As a result we are likely to see more price pressure than usual throughout this winter.

On the positive side, Kogan Creek in Queensland should come on line in the next few months. This will add around 750 MW of air cooled capacity, and should help ease conditions, especially in Queensland and NSW.

Looking ahead to 2008 some additional capacity should come on-line, including TRUenergy's Tallawarra plant in NSW. New water pipelines should also see some generation in Queensland come back on-line. Some good rains combined with new plant should see some easing of prices in 2008. But there are risks.

NEMMCO is reviewing the impact of drought on reliability. At this stage the AER doesn't see significant risks to reliability until at least the end of 2008. Drought is reducing the output of hydro and some coal plants, but peak capacity is not significantly affected. Most of the energy constrained plants can still run at peak demand periods.

The investment environment

The impact is therefore likely to continue as a price issue, rather than a reliability issue. The most significant risk is of persistent drought. If this were to occur, high prices would continue until investment responses provided a correction. I think it is likely that the drought is changing perceptions of the type of investment response that may be needed. The days of viewing water as a ‘free’ good are over, and every market that relies on it is likely to face significantly higher costs in the future. A rational investment response must factor in these costs. In electricity, the response might include investment in generation plant that is not fresh water reliant, and investment in water pipelines. We should not, however, overstate the impact of the cost of water in electricity generation. Generators using water for cooling typically require around 2 kilolitres (about \$2 worth at current prices) per megawatt generated. Even a large increase in the cost of fresh water is unlikely to render these plants uneconomic.

Of course the very nature of drought raises challenges for investors. Quite simply, nobody knows how long the drought will persist. But we have seen some response already with Origin’s announcement of an expansion of its Quarantine gas plant in South Australia and the Queensland government’s announcement of new investment in water pipeline infrastructure. If high prices were to persist for extended periods without an appropriate investment response—or a normalisation of rainfall—then the question of market power would need to be revisited.

As highlighted by the ERIG review, efficient investment decisions need policy and regulatory certainty. These are issues I am happy to explore in more detail at another time.

Conclusion

In summary, the evidence points to the spot market reacting in a largely normal way to very tight supply conditions caused by drought, though the high prices in the forward contract market may not be fully explained by the drought. There is little evidence of inappropriate generator behaviour at this stage—but the AER will continue to closely monitor the market. More generally, the state of the market should not be viewed as evidence of a design issue. Rather the translation of supply issues

into higher prices is the most efficient way of sending signals to investors to make a response to remedy the problem.

Rapidly growing energy needs have created world-wide issues and concerns. This is unlikely to be the last external shock to energy supply in Australia and we can generally expect that the cost of energy will follow a long term rising trend.

Efficiently operating markets and market mechanisms deal with volatile markets better than any other form of regulation. Provided that sustained and substantial market power issues do not emerge, the NEM is well designed to deal with energy supply issues and problems at least cost.

In May, the Ministerial Council on Energy reiterated its confidence in the market as the primary mechanism for dealing with supply, demand and energy constraint issues. The AER fully endorses this position.