

THE FUTURE OF COAL FIRED GENERATION IN THE NEM

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Legal Briefings - By **Robert Nicholson**

STUDY EVALUATES LIKELIHOOD OF EARLIER PLANT CLOSURES

On 7 June Australian Energy Market Operator (**AEMO**) released a report by Aurora Energy Research looking at the likelihood that coal plants might close earlier than their anticipated closure dates. There has been much speculation about this, along the lines that the bow wave of renewable investment currently underway will push the coal plant out of the market due to the renewables' low marginal cost of operation.

If this were to happen in a way which might leave load unserved, naturally this would be of concern to AEMO.

The report concludes that, based on AEMO's "base case" assumptions, each of the coal plants currently operating has a positive net present value and would not be expected to close early on economic grounds (and might even close later).

However, under other assumptions, Aurora found that some of the plants would have a negative net present value. This includes lower demand (such as if a smelter or other large customer ceased due to cost pressures), a carbon tax or emissions trading scheme or higher mandated renewable generation. Some plants are more sensitive to these scenarios than others. But if a large coal plant were to succumb to these pressures and closed earlier than expected Aurora found that the economics of the remaining plants would improve materially.

Media seized on these observations as proving the vulnerability of coal fired generation. Recently, speculation has emerged that Yallourn power station may start to close a little earlier than its scheduled 2032 assumed life as a result of the Victorian Government's renewable energy target.

IMPACT OF THE "DUCK CURVE"

Even though all coal fired plants appear economic on the base case assumptions, their economics may be more robust than Aurora predict.

The report appears to assume that all energy is sold through the pool. As more renewables come on the system, the pool price becomes more volatile. Even though the pool price is usually set by gas or coal fired generators, not renewables, Aurora predict that the “duck curve” effect of more solar generation in the middle of the day (some of it “behind the meter”) may drive the pool price quite low, especially in Queensland.

Aurora Energy predicts that black coal plants will need to back off once the price falls below its short run marginal cost (brown coal has a very low SRMC). Therefore the plants will be ramping up and down more and will require more maintenance, which they allow for.

The fact that the coal plants will generate less and sell its output at potentially lower pool prices will also impact generators, they say.

In reality however, a large amount of energy is either consumed by a generator’s retail arm (effectively through internal contracts) or is subject to derivative contracts with other market participants which lock in the price.

These contracts typically mean that, even if the pool price is very low, the generator will still receive the same revenue, even if it is not generating. So, apart from any load that is not contracted, there is no need for generators to reduce generation when the pool price falls, other than to arbitrage the pool and contract price to the extent feasible (and burn less coal), which actually enhances profitability.

Coal fired generators can write firm contracts because they are reasonably confident of being able to run at any given time. Renewable generators can largely only write non-firm contracts unless supported by other dispatchable plants.

Non-firm renewable contracts generally either have a floor price of zero or include provisions allowing the counterparty to require the generator to reduce production if the pool price goes negative for more than short windows, sometimes with compensation.

As renewables’ share of total generation grows, the “duck curve” gets deeper and very low pool prices are predicted to emerge at times however storage facilities will come into the market then, supporting the price and, if it does get very low, renewables should be expected to be the first to turn off when the price hits zero or below. Coal fired plants can more readily bid zero or negative prices into the pool.

But even in a low pool price environment coal plants are quite happy receiving contract price, so long as the market continues to seek firm contracts at prices and volumes which deliver a good return to them.

Nobody can predict the future with certainty but, given the Retailer Reliability Obligation and the economic consequences for retail businesses of not having firm contracts at times of maximum pool prices (VoLL), there may be the potential for firm contract prices and the average pool price to diverge over time. While cap contracts (which only kick in at prices well above the average pool price) give retailers protection from very high prices (and do not help generators much in low priced environments), many market observers believe a retail business built solely on pool purchases or renewable contracts and cap contracts has a fairly high risk profile although others suggest this strategy is feasible.

Coal fired generators remain the overwhelming source of dispatchable generation to support firm contracts. Of course, new sources of dispatchable generation, some supported by the Federal Government's UNGI programme, will provide competition over time, but this plant is not cheap and will need to generate a return too.

Even if a capacity market is adopted, the same solid revenues might still be available to support coal and other dispatchable plants because the total supply of and demand for firm capacity will be similar to that which underlies the current contract market.

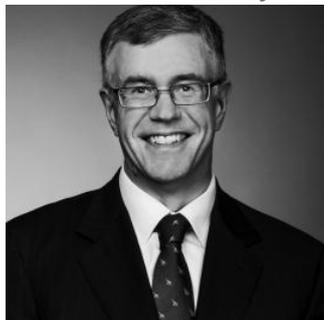
CONCLUSION

Aurora Energy has concluded that all existing coal fired generators should deliver an adequate return to their owners over their scheduled lives, using AEMO's base case assumptions.

Whilst it highlights alternative sets of assumptions where some coal plants may not deliver a positive net present value, there are a wide range of factors that would influence this, including the role of the contract market and the market's need for dispatchable plants.

KEY CONTACTS

If you have any questions, or would like to know how this might affect your business, phone, or email these key contacts.



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