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The New South Wales Energy Reform Strategy: A Critique

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1. Introduction

The New South Wales reform strategy is based on three main components:

- Introduction of new entrant companies, gen-traders, who would buy power from the existing power stations and bid them into the wholesale electricity market;
- Sale of the retail function of the three publicly owned distribution companies either by trade sale or independent public offering (IPO);
- Introduction of retail competition for all electricity consumers.

Ownership and operation of the network and of the existing power stations would remain in public hands, but sites for new power stations would be sold to encourage development of new generation.

This model is significantly different to any other electricity system in the world and is totally untested. Its introduction would therefore represent a significant risk.

1.1. Assumptions

The need for the model is based on a number of assumptions which are all highly questionable and deserve careful examination:

- There will be no investment in the new generation by the private sector unless there is no possibility that the publicly-owned companies will build new plant;
- The wholesale electricity market is too risky for the public sector to be exposed to this risk;
- If power plant development sites with all relevant planning permissions are sold, this will be sufficient to ensure new capacity;
- New entrants will come into the retail market

1.2. Priorities

The priorities are as follows:

- To remove the public sector from the competitive elements of the electricity industry;
- To prevent the diversion of public resources from other public services such as transport, health and education to the electricity sector;
- To maximise proceeds of the sale of the publicly owned assets;

2. The Model

2.1. Gen-Trader companies

The first thing to note about these gen-trader companies is that they would be an additional set of companies whose costs and profits would have to be covered by consumers in the form of higher electricity bills. Generation, retail, transmission and distribution costs would not, at least while the initial contracts were in place, be changed by the addition of this set of companies so their impact can only be to increase consumer prices. The next thing to note is that there is no experience of such companies in the energy sector. This means their introduction will inevitably be costly in the short-term and, until the viability of such a business is proven, they will be a risk.

These companies would sign long-term contracts to buy power from the publicly-owned plants and would trade the power in the existing wholesale market, the National Electricity Market (NEM). In the longer term, they would contribute to the investment needed to keep the existing plants in service. It is not clear whether it is expected that these companies would also be involved in the construction of new capacity. It is worth examining what sort of companies these trading companies would be.

They would own no assets as such and would not be required to have any technical skills in power station operation. However, they would, effectively, be dispatching the power stations with no direct responsibility for the physical consequences of a given dispatch pattern. It would be important to ensure that the traders would not call for dispatch patterns that were detrimental to the life of the plant. Their skill would presumably be purely as a commodities trader in electricity. The companies involved would therefore be likely to have low capitalisation either as small independent companies or as legally separate subsidiaries of larger companies.

The NSW government claims that the wholesale electricity market is too risky for publicly owned companies to be involved in it. It cites the variability of wholesale prices which can vary between - \$1000-\$10,000/MWh. The obvious conclusion to draw from such variability is the design of the market needs to be re-considered. Such extreme price volatility suggests design defects. It may also mean that the more fundamental question should be posed: is the wholesale electricity sector amenable to operation as a wholesale market?

If the wholesale market is as risky as the government claims, it is highly likely that the trader companies will, sooner or later, make commercial errors. If they have to sell their power for less than they have to pay to the generators on the long-term contracts they will buy their power under, they will quickly get into trouble. With their low capitalisation, they will go bankrupt and the publicly-owned generation companies will not be paid. What will happen in such a situation is not anticipated by the government. However, the idea that shifting trading in electricity to private sector companies reduces the risk to the public sector is blatantly not true. The trading companies will inevitably be relatively fragile and when they fail, the public sector will be left to pick up the pieces.

2.2. Retail companies

While the retail function is a part of all electricity systems, it is usually combined with the distribution function in traditional electricity systems or the generation function in liberalised electricity markets. Like the trading companies, these companies will have negligible physical assets with their brand name likely to be their most valuable asset. If their brand name really is an important asset, as implied by the government's paper, this suggests that consumers will buy on the basis of brand rather than price. This is hardly a recipe for an efficient market: consumers must choose on the basis of price if the companies are to be placed under competitive pressure. The retail companies will be subject to similar market risk to the traders as they will be required to buy at least some of their power from the highly variable wholesale market and sooner or later they will make errors. Like the traders, if they have to pay more for their power than they are obliged to sell their power for under the tariffs they offer or the contracts they have signed with industrial consumers, they will quickly get into trouble. Their low capitalisation means they will quickly go bankrupt. This, in turn, will mean that the traders will not be paid and this could bankrupt them, meaning the publicly-owned generators would not be paid.

In other liberalised systems, retail has generally been quickly absorbed by the generators. This reduces the commercial risk to the generation and the retail functions because the companies' exposure to the wholesale market is minimised. However, this is at the expense of the wholesale market. If there is not an efficient wholesale electricity market, there is little justification for liberalising the electricity sector.

The idea that shifting the retail electricity activity to private sector companies reduces the risk to the public sector is blatantly not true. Like the trading companies the retail companies will inevitably be relatively fragile and when they fail, the public sector will be left to pick up the pieces.

2.3. Retail competition

Whether there is retail competition should not be a major determinant of consumer prices. If the generation market is an efficient one, retailers will pay the same for their generation, transmission and distribution will be standard charges. The retail element - buying wholesale electricity, reading meters and sending out bills - should not account for more than a few percent of a consumer's

electricity bill so even if the retailer is far more efficient than its competitors, the prices it offers will be little lower. Indeed, competition imposes costs, such as marketing, switching costs and loss of scale economies in meter reading etc, that do not exist in a monopoly market.

Practical experience in most European markets is that the level of switching is minimal, new companies entering the market are not successful and the costs of switching are high. In the UK, switching rates are much higher than elsewhere but the evidence suggests that most consumers that do switch do not move to the best option. If retail competition is not an option that consumers are interested or able to use effectively, it is hard to justify giving consumers such a choice.

3. Assumptions

3.1. Will new investment in generation occur?

This is perhaps the key question. If the new model does not stimulate investment to meet demand growth and to replace worn out capacity it will have failed. The government forecasts that new capacity will be needed by 2016. It also has a target to increase the percentage of renewable from 6% currently to 20% by 2020.

There appears to be no fall-back position in the government paper for the eventuality that investment does not materialise. Four questions need to be asked: Will the market provide appropriate price signals? Will companies respond of these price signals do appear? Under what terms will new companies invest? Will the market choose renewable sources if left to make their own decision?

The government's paper implies that all that is preventing the private sector from investing in generation in Australia is the risk that the government's companies will pre-empt the investment by building. While it is clear that the private companies would prefer that one avenue to competition, from publicly owned companies - is closed off, it is not clear why government owned companies would want and would be allowed to build capacity ahead of need. Capacity need is not usually clear-cut, it depends on forecasts of demand growth and plant retirement rates, which 5-10 years forward, the lead-time for new capacity, are uncertain. If the price signals only appear closer to the point of capacity need, the market will only be able to respond by building short lead-time plants like open cycle gas turbines, which will provide the needed power very expensively.

However, the logic of introducing a market is that it will provide timely price signals that will show when new investment is needed. It is highly questionable whether the market will provide such clear unequivocal signals that investments in billions of dollars can be undertaken, especially if, as the government states, wholesale electricity price are so volatile.

As was demonstrated so damagingly by the California energy crisis of 2001, independent generators in a competitive electricity market are far more profitable in a situation of power shortage than of surplus so there is a risk the new system will have a positive disincentive for generators to invest.

Australia's experience has been similar to that of other countries in terms of new generation investment. In the period before the collapse of Enron in 2002, there were a number of companies prepared to build 'merchant plants', such as AES, Dynegy and Intergen. The collapse of Enron led to a rapid exit from this market of all these companies because investment in new power plants which were required to compete in a half hourly market was revealed to be intolerably risky. Investment is now only undertaken by companies that have a long-term power purchase agreement (PPA) or by companies that also own retail businesses which provide much greater market certainty than the wholesale market.

The government implicitly acknowledges that merchant plants will not be built. It states:

'As generation investments are long-lived and their costs more certain than their revenues, investors need as much certainty as possible to commit to an investment in such assets.'

While new plants with long-term PPAs would give greater security of supply, they would mean that the wholesale market would wither away as generation was taken over by new plants with long-term PPAs. However, it is not clear whether the retail companies would be able to sign long-term PPAs or if they were, whether a contract with them was credible.

If the retail market is to be genuinely competitive, consumers will switch frequently and easily to the cheapest supplier so no retail company could confidently predict its market share more than, say, a year ahead. The retail companies would have minimal capitalisation and a long-term contract with them would have little credibility. If the government actually expects that residential consumers will stick with their local supplier on the basis of brand name, in other words, the retail market will be a sham; this would allow long-term contracts to be signed. However, this would mean that both the wholesale and retail markets would be no more than elaborate charades.

There is no experience anywhere in the world of electric utilities in competitive markets choosing to build renewable capacity (other than large-scale hydro-electric) without subsidies or government-imposed obligations. To increase the renewable share from 6% to 20% would mean that most of any new capacity built would have to be renewable. The choice for the government is therefore either to abandon the 20% target or require the generation companies to build renewable facilities. The latter would make a mockery of the government's strategy to maximise competition in electricity generation.

3.2. The wholesale electricity market is too risky for the public sector

As argued above, the type of private sector companies created or brought into the market will not have the financial strength to survive in the long-term so the appearance that risk has been shifted from the public to the private sector is an illusion.

3.3. New generator entrants will come into the market if the public sector is absent and power station sites are sold off

If the competitive market is not to be too concentrated to be efficient, new entrants will have to be attracted in. The generation market with five competing companies would be classified as highly concentrated (an HHI of at least 2000) and would suggest the need to break up the new trading companies. If there was a risk that this would occur, this would be a serious deterrent to private interests becoming traders. If there was no such risk, the government would have created a protected oligopoly.

As argued above, it seems highly unlikely that any new generators will enter the market unless they have long-term PPAs. Such companies will not contribute to competition and will not reduce concentration.

3.4. New entrants will come into the retail market

For the retail market, new entry is no more likely. As the government argues, the value in the three retail companies will be in the brand name, so new entrants without the benefit of a brand name will stand little chance of gaining market share. Even in the UK, where there is more than a decade of experience of retail competition, all new entrant retailers have failed and the 14 regional companies have, through takeovers and mergers been cut down to six companies.

If the retail market remains with just three competing companies, the market would be classified as highly concentrated (at least 3300 under the Hirschmann-Herfindahl index¹).

¹ HHI is the conventional way anti-trust authorities measure market concentration. It is a number between 0 (for a highly fragmented market) and 10000 (for a monopoly). Any market with an HHI of more than 1800 is conventionally categorised as highly concentrated).

4. Priorities

4.1. Removing the competitive elements of the electricity industry from the public sector

As argued above, the new model will remove control of the electricity industry from the public sector but without removing any of the risk. The new companies will have a high risk of failure and the public sector will inevitably have to step in when this occurs.

4.2. Optimising sales value

The government states that its objectives are to deliver a competitive market structure and to optimise the sales value of the public assets. These two objectives are irreconcilable. The more competitive the market the companies will have to compete in, the more risky the business and hence the lower the value. To maximise the sale proceeds, the companies would have to be sold as monopolies. The New South Wales Auditor General has warned of the need for a reserve price if the assets are not to be sold off at 'distress' prices. The result of imposing a reserve price that reflects the real value of the assets is likely to be that there will be no bids unless the competitive elements of the new structure are watered down.

4.3. Investing in power plants restricts government's ability to provide services

The sale of the companies will generate a one-off wind-fall which can be used to finance one-off investments in other services. However, this will be in exchange for giving up the stream of revenue the profits from the electricity sector would provide the government with if it retained the assets. As argued above, the proceeds of the sale will be determined by the degree of competition introduced and could be well below the real value of the assets. Giving up a stream of profits from the sector in return for a small short-term windfall seems a poor deal for taxpayers.

The plans also seem to imply that if the government has to invest in new power stations, it will restrict the amount they can spend on services. This is a curious argument. It implies that the government uses its tax revenue to finance capital investment in the electricity sector. This is blatantly not true. Publicly owned electricity companies, like privately-owned companies, finance new investment using a mixture of self finance from profits (equity) and borrowing (debt). There is no connection between borrowing for such purposes and the use of tax revenue to pay for services such as health and education.

5. Conclusions

The model proposed by the New South Wales government is unlike any system elsewhere is therefore untested and on those grounds alone represents a major risk to New South Wales citizens.

The suggestion that risk is being shifted away from the public sector is an illusion because the companies created will be too fragile to be durable. It is also a fallacy that keeping the electricity sector in the public sector risks resources being diverted away from other public services. The government's twin objectives of maximising the sale proceeds of the publicly owned companies and making the electricity sector competitive are irreconcilable. The more competitive the electricity sector, the lower the value investors will place on the companies. This means that unless the competitive elements of the new model are heavily diluted, the assets will have to be sold very cheaply.