7. Securing Private Sector Investment

Key Findings

- The private sector has demonstrated it will invest in new generation in the NEM under the right conditions.
- Surplus generation capacity has meant little investment has been needed in New South Wales to date. However, taking a risk-averse approach, New South Wales needs to be in a position where new baseload generation can be operational by 2013-14 if necessary.
- The private sector can manage the commercial risks in developing a power station but has less capacity to handle policy and regulatory risks. Submissions to the Inquiry highlighted carbon uncertainty and government ownership as impediments to investment.
- To secure on-going generation in New South Wales that is adequate, economic and timely, the NSW Government should transfer its retail and generation interests to the private sector.
- In transferring these interests, the Government will maximise the range of competing potential investors, quarantine risk to the State’s fiscal position and AAA credit rating, and realise proceeds not otherwise available and likely to be eroded over time.
- This does not involve selling the ‘poles and wires’ of the State’s electricity transmission and distribution networks.
- The Commonwealth Government should bring forward the timetable for establishing a national emissions trading scheme. At a minimum it should resolve and announce:
  - the national greenhouse gas reduction target and short term caps and associated penalties
  - the basis for allocating emissions permits.
7.1 Introduction

The Inquiry’s consideration of private sector investment in generation was assisted by the detailed work undertaken by Morgan Stanley.

Morgan Stanley identified and assessed whether there are conditions in New South Wales that are deterring the private sector from investing in new generation capacity. They also developed and assessed the options available to the NSW Government, should it choose, to address the identified conditions.

Morgan Stanley’s report is Expert Report 3 to this Report.

In this Chapter, the Inquiry considers the conditions and options identified by Morgan Stanley and reviews:

- the validity and significance of the conditions
- the necessity and effectiveness of the recommended options.

Given the history of generation investment in Australia, and the prominence of the public sector in funding this investment, Morgan Stanley assessed:

- whether the private sector has delivered generation investment, including peak, intermediate and baseload, in the NEM to date
- what conditions would most likely ensure private sector investment in generation in the New South Wales
- what conditions would most likely prevent private sector investment in new generation in the New South Wales
- are there any conditions specific to, or more prevalent in New South Wales, than in the rest of the NEM.

7.2 Private Sector Investment

As outlined in Chapter 6 previously, the Inquiry agrees that the NEM has worked well since its inception. The NEM has meet the market objective to ‘promote efficient investment in, and efficient use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity and the reliability, safety and security of the national electricity system’.

1 Section 7 of the National Electricity Law
Would the private sector invest in generation?

Table 6.1 lists over 20 significant power station developments in the NEM, most of which have private sector involvement. There appears no lack of appetite by the private sector to invest in the NEM, under the right conditions. That this list includes very little investment in New South Wales is not surprising given the surplus generation capacity built in the 1980s and the development of interconnection with Queensland. Excluding Redbank, no new capacity has been commissioned in New South Wales since the early 1990s.

New South Wales is, however, beginning to need new capacity and this is being reflected in Table 6.1 with three gas-fired plants - Tallawarra, Colongra and Uranquinty - due to be commissioned in 2008-09.

Submissions to the Inquiry from those parties likely to invest in generation, are confident that the private sector will invest in generation capacity when a demonstrable market need reflected in wholesale electricity prices is predicted, and an investment case can be made for commercially viable operation and financing.

There is a growing market need for baseload

The existence of surplus baseload capacity and the development of interconnection between States have meant that there has been a limited market need for additional investment in baseload in New South Wales and, consequently, the economics in the wholesale market have not justified it. However, as discussed in Chapter 2 there is an emerging need for new baseload capacity in New South Wales. Further, while views on timing vary, TRUenergy’s view is representative of the consensus:

‘In summary, we believe baseload investment could be required from as early as 2012, however, there is significant uncertainty in the forecast, and credible cases can be made out to 2015-16’. ²

Markets can overcome business risks

Morgan Stanley has outlined the factors that constitute a generation investment decision. Investment in power generation is technically complex, commercially risky and capital-intensive. Even prior to commissioning, the investment process exposes developers to business risk associated with:

- locating, acquiring and obtaining development approval for an appropriate site
- sourcing fuel and negotiating fuel contracts
- obtaining a sufficient level of debt finance at appropriate interest rates
- construction costs and timetables.

Once a power station is operating, there are ongoing risks of:

- volatility in wholesale electricity prices, which can vary significantly in half hour intervals
- availability and operational efficiency of the plant
- changes in interest rates, which will affect the cost of servicing debt and the returns to equity investors
- another new power station being built, which has a lower operating cost and therefore is earlier in the merit order.

**Policy risks will discourage investment**

The Inquiry notes that markets have developed to handle some, if not most, of the commercial risks associated with power station development through a variety of mechanisms. However, markets have limited capacity to quantify and handle policy and regulatory risks.

Table 7.1 demonstrates that all types of generation (and their associated fuel sources) have different characteristics which mean market participants will face different market and policy risks with each technology.

**Table 7.1: Qualitative Comparison of Generating Technology by Risk Characteristics**

<table>
<thead>
<tr>
<th>Technology</th>
<th>Unit Size</th>
<th>Lead Time</th>
<th>Capital Cost/kW</th>
<th>Operating Cost</th>
<th>Fuel Cost</th>
<th>CO₂ Emissions</th>
<th>Regulatory Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCGT/OCGT</td>
<td>Medium</td>
<td>Short</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Coal</td>
<td>Large</td>
<td>Long</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Nuclear</td>
<td>Very large</td>
<td>Long</td>
<td>Very high</td>
<td>Very low</td>
<td>Nil</td>
<td>Nil</td>
<td>High</td>
</tr>
<tr>
<td>Hydro</td>
<td>Very large</td>
<td>Long</td>
<td>Very high</td>
<td>Very low</td>
<td>Nil</td>
<td>Nil</td>
<td>High</td>
</tr>
<tr>
<td>Wind</td>
<td>Small</td>
<td>Short</td>
<td>High</td>
<td>Very low</td>
<td>Nil</td>
<td>Nil</td>
<td>Medium</td>
</tr>
<tr>
<td>Recip. Engine</td>
<td>Small</td>
<td>Very short</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Fuel Cells</td>
<td>Small</td>
<td>Very short</td>
<td>Very high</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Photovoltaics</td>
<td>Very small</td>
<td>Very short</td>
<td>Very high</td>
<td>Very low</td>
<td>Nil</td>
<td>Nil</td>
<td>Low</td>
</tr>
</tbody>
</table>

Source: Morgan Stanley Expert Report, p. 107

The characteristics of each type of generation form part of the decision making process for potential investors. For example, a comparative advantage of coal-fired generation is its lower fuel costs however, due to its higher CO₂ emissions it is greater exposed to policy risk through the cost of carbon and emission trading schemes.
The Inquiry notes, that in the above table ‘Nil’ for CO₂ emissions is for comparative purposes and in reality CO₂ emissions are low, not nil. Similarly, while OCGT and CCGT are described together on the table, operating costs for CCGT are generally higher.

### 7.3 Conditions for Private Sector Investment

Submissions to the Inquiry consider that an appropriate environment to ensure privately funded and efficient generation investment is a market that is commercially determined with a clear and transparent Government policy and regulatory framework. In particular, investors look for a market such as the NEM that provides for a commercially determined wholesale price of electricity so that the market need for generation is signalled primarily by the level of current and forward prices.

For example, Alinta states:

‘Investors need clear rules to undertake a long term commitment such as a baseload power station. Appropriate policies need to be set firmly in advance of a project starting date (given the long lead times involved) and need to remain in place for the long term to give investors confidence that rules will not be changed arbitrarily’. ³

The submissions are clear that a fundamental condition prior to any generation investment is an emerging or perceived market generation shortfall reflected in wholesale electricity prices. With general confidence in the NEM framework as set out in Chapter 6; the two most significant issues identified by the submissions to the Inquiry are the perception that government ownership creates in market participants and the uncertainty arising from greenhouse gas policy.

**Policy and regulatory risks must be reduced**

As discussed in Chapter 6, New South Wales is now unusual within the NEM, with a high level of Government involvement in the State’s electricity industry. The NSW Government is the owner of the vast majority of the State’s electricity transmission, distribution, generation and retail businesses.

A number of submissions touched on the market uncertainty created by government ownership. For instance, uncertainty around the capability of the State’s existing power stations and the investment intentions of the SOCs was noted as a cause of concern when considering investing in new generation. Of the policy and regulatory risks almost all submissions mentioned the importance of more certainty on greenhouse gas emissions policy. Greenhouse gas emissions policy is discussed in Chapter 5.

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³ Alinta submission, p.4
What conditions are needed?

Access to a stable revenue stream

Investors will not invest if they cannot form a reasonable expectation that they will earn a return from their investment. For generation, the expectation of return is based on their expectations of the prices available in the electricity spot and contract markets when the power station is completed and operating.

To provide greater certainty, and reduce risk around future market prices and revenue, power stations owners have adopted business models that provide a relatively stable stream of revenue and earnings. The three most prominent models are:

- fully contracting the power station’s future output
- incorporating the power station as part of a vertically integrated portfolio
- incorporating the power station as part of a generation portfolio.

In Australia, the trend has been towards portfolio generation and vertical integration. Each of these business models and how they create an incentive to invest in generation are considered in some detail in the Morgan Stanley Report and summarised in the following section.

Vertical integration insulates earnings from volatility

Vertically integrated firms, such as AGL, Origin Energy and TRUenergy, are able to insulate their business’s earnings from potentially volatile movements in wholesale electricity prices through having both retail customers and power stations. Such models, commonly referred to as ‘gentailers’, have evolved largely from the requirement for large electricity retailers to add generation capacity to offset the risk from variable input costs (wholesale electricity prices) being sold at a fixed cost to customers (regulated price caps or contestable contracts).

The addition of generation to a retail base:

- provides greater flexibility (i.e. control over dispatch of plant) compared to contractual arrangements to manage wholesale price risk
- tends to reduce the risk of the business, resulting in a lower cost of capital and higher credit rating
- provides opportunities to realise greater business synergies.
In considering the incentive to build, AGL noted in its submission that ‘nearly all additional generation capacity in the NEM resulting from investment by the private sector, has had some form of downstream support in order to improve revenue certainty’.\(^4\) Table 7.2 below illustrates this point.

<table>
<thead>
<tr>
<th>Project</th>
<th>Technology</th>
<th>Location</th>
<th>Downstream Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pelican Point</td>
<td>CCGT</td>
<td>SA</td>
<td>Medium-term contracts with ETSA and AGL</td>
</tr>
<tr>
<td>Valley Power</td>
<td>OCGT</td>
<td>Vic</td>
<td>Medium-term contracts with Pulse</td>
</tr>
<tr>
<td>Ladbroke Grove</td>
<td>Gas</td>
<td>SA</td>
<td>Origin retail entry in SA and incumbency in Vic</td>
</tr>
<tr>
<td>Quarantine</td>
<td>OCGT</td>
<td>SA</td>
<td>Origin retail entry in SA and incumbency in Vic</td>
</tr>
<tr>
<td>Playford</td>
<td>Coal</td>
<td>SA</td>
<td>Medium-term contracts with AGL</td>
</tr>
<tr>
<td>Somerton</td>
<td>OCGT</td>
<td>Vic</td>
<td>AGL retail incumbency</td>
</tr>
<tr>
<td>Hallett</td>
<td>OCGT</td>
<td>SA</td>
<td>AGL retail incumbency</td>
</tr>
<tr>
<td>Bogong</td>
<td>Hydro</td>
<td>Vic</td>
<td>AGL retail incumbency</td>
</tr>
<tr>
<td>Bairnsdale</td>
<td>OCGT</td>
<td>Vic</td>
<td>Network support agreement with TRU</td>
</tr>
<tr>
<td>Laverton</td>
<td>OCGT</td>
<td>Vic</td>
<td>Red Energy retail entry in Vic</td>
</tr>
<tr>
<td>Braemar</td>
<td>CCGT</td>
<td>Qld</td>
<td>Long-term contract with Energex</td>
</tr>
</tbody>
</table>

Source: AGL submission, p.15

The view that businesses will have strong incentives to build generation capacity to support their electricity retail obligations is supported by Origin Energy’s recent announcement of the construction of the 630MW CCGT at Darling Downs, following its acquisition of a Queensland retail customer base through its purchase of Sun Retail.

**Portfolio generation reduces risk through diversification**

Compared to the vertical integration model, which has been adopted by businesses who ‘own’ a retail customer base, the portfolio generation model has been adopted by businesses exposed to the wholesale cost of electricity through owning generation, such as International Power, Babcock & Brown Power, InterGen and Transfield. Portfolio generators are likely to be developers of new power stations, as this provides a mechanism to ‘de-risk’ the overall business through diversification of:

- geographical location - plant spread across different regions of the NEM allows the business to manage price and inter-regional risk

\(^4\) AGL submission, p.15
physical insurance - multiple plant and hedge contracts allows the business to manage risk as another of their plants can cover for physical interruptions (scheduled or non-scheduled) of a plant

fuel source – plant with different fuel sources (i.e. gas, coal, wind) allows the businesses to manage the risk of being reliant on a sole fuel source, provides an ability to dispatch least-cost plant to service hedge contracts, and creates competitive tension when negotiating fuel supply contracts

revenue source – power station portfolios can include power purchase agreements (PPAs) and other forms of long term contracts as well as some merchant exposure to wholesale spot and forward electricity prices. Contracted revenues underpin earnings and provide access to a cheaper cost of capital, while the business can retain some upside benefit through exposure to pool prices.

Portfolio generators that have invested in the NEM are outlined in Table 7.3.

Table 7.3: Generation Portfolio Development in the NEM

<table>
<thead>
<tr>
<th>Year</th>
<th>Plant</th>
<th>Developer</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Uranquinty (NSW)</td>
<td>Babcock &amp; Brown Power</td>
<td>640MW - Natural Gas</td>
</tr>
<tr>
<td>2002</td>
<td>Milmerran (QLD)</td>
<td>InterGen</td>
<td>852MW - Black coal</td>
</tr>
<tr>
<td>2002</td>
<td>Valley Power (VIC)</td>
<td>Edison Mission</td>
<td>300MW - Natural Gas</td>
</tr>
<tr>
<td>2000</td>
<td>Pelican Point (SA)</td>
<td>International Power</td>
<td>478MW - Natural Gas</td>
</tr>
<tr>
<td>1990s</td>
<td>Hazelwood Refurbishment</td>
<td>International Power</td>
<td>1600MW - Brown Coal</td>
</tr>
</tbody>
</table>


To operate in New South Wales, these two business models require access to the NSW retail and generation market by gentailers and portfolio generators.

**Access to sites is essential**

Access to good sites is key to building a power station. In New South Wales, Government businesses currently own some of the most suitable and progressed generation development sites in the State.

EnergyAustralia, Delta Electricity and Macquarie Generation own peak and baseload gas-fired development sites at Marulan, Bamarang and Tomago, respectively. Delta Electricity and Macquarie Generation also own coal-fired baseload development sites adjacent to their existing power stations at Mt. Piper and Bayswater, respectively.
Compared to other greenfield baseload generation sites, the sites owned by the energy State Owned Corporations (SOCs) are:

- favourable in terms of access to fuel, water supply and transmission infrastructure. The coal-fired sites also are able to share infrastructure already provided for the existing power stations and integrate operations. This has the benefit of reducing construction cost and the long run marginal cost of the plant
- considerably progressed in the project feasibility and development approval stages. Project feasibility and development approval for baseload plants can take up to 3 to 4 years and the private sector are unlikely to commit capital to a baseload power station at a greenfield site that is behind a potentially competing project.

The Inquiry notes that without access to these sites the private sector is not likely to invest in competing sites that are commercially less favourable.

**Access to competitively priced fuel**

Before investing in a power station, potential investors will seek to manage their exposure to the cost and availability of fuel by contracting for a fuel supply and assessing the affect of fuel price changes on the economics of their power station. Given the focus on baseload generation and the conclusions of Connell Wagner on available generation technology, this section focuses on coal and gas as generation fuel sources.

New South Wales has abundant coal resources, and the NSW Department of Primary Industries estimates recoverable coal reserves of in excess of 10 billion tonnes. This is equivalent to almost 300 years worth of NSW domestic coal consumption. New South Wales also a long history of producing electricity from coal and consequently has existing infrastructure to support coal-fired generation.

As discussed in Chapter 3, Wood Mackenzie’s conclusion on the availability and cost of gas for NSW baseload generation was:

- there is a reasonable expectation that there are sufficient gas supply resources to support long term gas-fired generation capacity additions in New South Wales, with higher gas prices expected to support further exploration and development of gas resources in Eastern Australia
- additional pipeline capacity will be required to meet the growing gas demand in New South Wales.

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5 Expert Report 1  
6 Expert Report 3, p91  
7 Expert Report 2, Executive Summary
Submissions to the Inquiry, and Morgan Stanley’s discussions with market participants, have reinforced the expectation that additional gas supplies will be developed to support new gas-fired generation investment, should this prove commercial.

Consequently, the Inquiry considers that there are adequate coal and gas supplies/reserves available to New South Wales to supply baseload generation in New South Wales in the medium term – under the right economic conditions.

These economic conditions reflect the fuel supply issues considered by potential investors in generation when assessing the economics of a power station:

- the ability for power station owners to be able to pass-through market-wide movements in fuel prices
- adequate fuel-on-fuel price competition
- clear commercial drivers for investment in gas transmission infrastructure
- timely and appropriate development approval processes for coal mines and gas transmission pipelines.

The following section discusses these conditions in more detail.

*Ability to pass-through fuel costs*

In the case of electricity generation, the ability to pass-through costs relies on wholesale, and ultimately, retail electricity prices. The role of regulated retail price tariffs in New South Wales is of most relevance in this context.

*Fuel-on-fuel competition*

Fuel-on-fuel price competition is an important mechanism for power station developers to reduce their fuel price risk.

The Inquiry considers that Governments should, therefore, not seek to prohibit, or unduly favour, certain fuel sources for power generation, but should manage any externality costs of fuel (e.g. carbon emissions) via market-based instruments, which would allow environmental outcomes to be achieved while not comprising fuel-on-fuel competition.
Competition within a particular fuel sources (e.g. gas vs gas, coal vs. coal) and between different fuel sources (e.g. gas vs. coal) are both important in minimising fuel price risk. In particular, given the potential increase in demand for gas as a fuel source and therefore reliance on upstream gas competition, coal on gas competition can provide an external ‘check’ on the level of wholesale gas prices because if wholesale gas prices rise too high, production and investment will be switched from gas to coal. Eastern Australia currently benefits from gas prices that are low on a global scale. The substantial endowment of coal on the eastern seaboard, and the ability of electricity and gas to be substitutes in many applications, appears to have placed downward pressure on domestic gas prices in the past.

**Commercial environment for gas infrastructure investment**

Given that New South Wales is geographically remote from known gas sources, development of significant gas-fired generation within New South Wales is likely to rely on additional gas transmission infrastructure. In light of the ‘lumpiness’ of transmission infrastructure development, the commercial case for gas transmission infrastructure development often relies on a pipeline developer aggregating and contracting with multiple customers to form a “critical mass” of demand to support the infrastructure investment.

Notwithstanding that there are clear commercial drivers for energy players to underwrite new gas transmission infrastructure, continued investment in gas transmission infrastructure is likely to require:

- an acceptable level of regulatory risk for the developers of new gas pipelines (the Inquiry notes that Council of Australian Governments (COAG) and the Ministerial Council on Energy (MCE) have focused on gas transmission regulation in recent years, and the Australian Energy Market Commission (AEMC) and Australian Energy Regulator (AER) continue to progress reforms in this area)
- timely and efficient progression of land access and development approval for new gas pipelines.

**Timely development approval for fuel sources**

Recognising the significance of coal mine developments or gas transmission pipelines, a timely and transparent development approval and environmental assessment process is required by investors. In assessing this issue the Inquiry notes that in August 2005, the Government’s ‘Major Project’ legislation came in to force to provide a single integrated environmental planning and approval process for major infrastructure and development in New South Wales. These reforms were implemented through Part 3A of the *Environmental Planning and Assessment Act 1979*, and replace assessment processes formerly applying to State significant development and major Government infrastructure projects.
The Inquiry recognises that these reforms have improved the planning approval process. However, given the significance of the planning approval process in constructing new power stations, and their associated fuel sources and infrastructure, and issues raised in the submissions, the Inquiry view is that New South Wales should continue to reform and improve the planning approval process.

Such improvements should aim to reduce the timetable to go through the process – in turn reducing the risk to electricity reliability from planning delays associated with commissioning new power stations. The importance of this is reflected in the comments of the Reliability Panel, that new power is being delivered in line with reliability standards, but with something of a narrow margin for error in some States and long or unexpected delays in development could compromise reliability.

The risk to reliability can also be highlighted by overseas experience where development difficulties were seen to have contributed to the California crisis in 2001.\(^8\)

<table>
<thead>
<tr>
<th>Lessons from other markets: Cumbersome development approval processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difficulties experienced in California in 2001 were contributed to by multiple factors acting over a single timeframe. One factor that has been commonly identified as contributing to the crisis was a cumbersome and slow authorization process for new generation plant. Multiple agencies and bodies were involved in/notified of new proposals as part of the process. Environmental concerns also delayed construction of new plant. In the period leading up to the crisis, review processes averaged well in excess of the targeted 12 month period. This was the case notwithstanding reserve levels at the end of the 1990’s were less than 10 per cent, low by international standards, and demand growth was high. Development processes appear to have been disconnected from the realities of the marketplace.</td>
</tr>
<tr>
<td>The energy crisis in 2001 forced a radical streamlining of review of the siting of new power plant. The California Energy Commission developed accelerated processes for plants assessed to have no adverse environmental impacts and processes for peaking plant were reduced to as little as 21 days.</td>
</tr>
</tbody>
</table>

Importantly, the Inquiry notes that New South Wales should continue to improve the planning approval process to promote fuel-on-fuel competition. In particular, if gas-fired plants attract fewer development approval issues than coal-fired plant, this reduced development risk and quicker timeframe from commitment to operation, may be a significant factor in developers favouring gas developments, all other factors being equal.

\(^8\) Expert Report 3, p102
Likewise, planning processes for electricity and gas transmission and other ancillary infrastructure can equally show overall development timeframes.

**Retail pricing**

While power stations sell their output directly into the wholesale electricity market, the revenues available to recover the costs of power generation ultimately come from retail tariffs. Inappropriate retail tariff regulation, which sets tariffs below the full cost of generating, transmitting and distributing electricity, and providing retail services to customers, can result in insufficient revenue being available market-wide to fund investment in new power stations. Without a clear source of revenue, the market simply will not invest in generation, as demonstrated in Ontario, Canada.⁹

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**Lessons from other markets: Distortionary policy responses**

The retail electricity market in Ontario opened to competition in 2002. Prices increased above expected levels after market opening. The government responded by freezing prices at low levels, and met the difference in cost between the wholesale and retail prices – the cost ran into hundreds of millions of Canadian dollars in the first 12 months alone, and the government (in reality, taxpayers) found itself in the position of subsidizing electricity prices. In reality this simply represented a value transfer from low consumption taxpayers to high consumption tax payers via government fiat.

The price freeze raised regulatory risks and deferred investment, and yet consumption behaviour was unaffected as consumers were sheltered from market-reflective price signals.

The government found itself paying for higher prices and at the same time, had to contract for new capacity as it had distorted investment signals via its price freezes. This actually had political consequences and inevitably a new government moved to raise price levels to reflect underlying economics.

This graphically demonstrates that where government seeks to intervene in price signals, it is government (i.e. tax payers) who are likely to face the consequences.

The Inquiry notes that in 2009 the AEMC will be reviewing the effectiveness of retail price competition in New South Wales. The Inquiry supports the removal of regulated price caps at that time, should the review find effective competition in the NSW retail market.

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⁹ Expert Report 3, p131
The Electricity Tariff Equalisation Fund (ETEF) was introduced by the NSW Government in 2001 as a transitional mechanism to manage the risk that the State-owned electricity retailers are exposed to in purchasing wholesale electricity in a volatile market to supply default customers at regulated prices.

The Inquiry notes the premise of ETEF, and the NSW Government’s decision to wind-down ETEF.

**Government ownership is an impediment**

The Inquiry recognises the important role for government in energy market policy and regulation. The key NSW policy issue that affects private investment is the NSW Government’s policy on future publicly-funded investment in power generation.

As set out earlier, the NSW Government is both policy-maker and owner of electricity businesses. This position creates a perception of a conflict for the Government. The Government has a preference for the private sector to fund new generation wants to ensure the ‘lights stay on’. The conflict arises with the perception that an effective, although not the most prudent, way to keeps the lights on is for the Government as owner to build.

The submissions to the Inquiry highlighted this issue with Delta Electricity’s recent announcement to build a gas-fired power station at Colongra. The NSW Government has indicated on a number of occasions its strong preference for the private sector to invest in new power generation and considers the Colongra decision is consistent with that preference.

However, rightly or wrongly, the private sector has concerns about the decision to build and some claim such actions deter private sector investment due to the potential stranding risk. The Inquiry notes that this perception has not stopped the private sector investors in both Tallawarra and Uranquinty. However, TRUenergy who are building Tallawarra, set out their views on the uncertainty government investment creates for investors in Figure 7.1.
Figure 7.1: TRUenergy Diagram on Uncertainty in Government Investment Policy

TRUenergy's diagram suggests the following chain of events resulting from market uncertainty about government investment policies:

- the market is uncertain of the government’s investment intentions, particularly where this uncertainty has been exacerbated by prior government investment
- the market is then less confident of making future investment, and may not make timely investment commitments
- the government perceives that private sector investment commitments are not forthcoming, and decides to invest (again) itself in order to secure supply
- the private sector then becomes increasingly nervous about making its own investment in the future, leading to further investment delays, further perceptions of supply security by government, and further government investment.

The Inquiry considers that this cycle of uncertainty could result in the Government being locked in to making all future generation investment. To break this cycle, the Inquiry believes it would be necessary for the Government to make a credible commitment not to invest further in generation.

Source: TRUenergy submission, p. 29.
As considered in the options section of this Chapter, such a credible commitment could be made through Government divesting its interests in the competitive sectors of the electricity industry.

The Inquiry has not been presented with any evidence of non-commercial investment and other market behaviour by the SOCs. Assertions are not well founded and the Inquiry notes in particular that the bidding behaviour of a public sector business is subject to the same regulation as bidding by the private sector. Investment decisions must meet the same sort of rate of return criteria that are sought in the private sector.

However, the Inquiry concludes that such perceptions do exist in the market and do play a role in the private sector’s decision to invest in generation in New South Wales.

**Carbon uncertainty is an impediment**

The Inquiry recognises that federally, a national emissions trading scheme should be implemented by 2012. As such, while investors in new power generation infrastructure are now factoring in an assumed emissions trading scheme they do not yet have critical details of how the scheme will operate in order to assess the impact on specific investment options. As discussed in more detail in Chapter 5, the annual emissions cap that government ultimately sets for the national emissions trading scheme will drive the carbon price. Until investors have certainty over the emissions cap they are unable to accurately forecast the likely price for emissions permits. The price for emissions permits could be critical in determining the most appropriate generation technology for investors to choose.

Submissions to the Inquiry are unanimous that investment in baseload generation will be delayed by uncertainty around a national emissions trading scheme.

The Inquiry believes greater regulatory certainty is necessary and the timetable for establishing the national emissions trading scheme must be brought forward. At a minimum the Commonwealth Government should resolve and announce the following key policy parameters:

- the economy-wide greenhouse reduction target and short term caps and associated penalties
- the criteria on which emissions permits will be allocated.

Without a timely resolution, the next tranche of significant investment in generation in New South Wales and the broader NEM will be made without an informed view of the future costs and regime for carbon. Under this scenario, it is unlikely the market will get the mix of generation technology right and ensure the most efficient market outcome, as shown in Figure 7.2.
Figure 7.2 illustrates that in the face of uncertainty, investors will tend to limit their downside risk by avoiding investment in higher emissions power generation. This will result in a natural bias away from coal-fired power stations.
7.4 Options for Consideration by Government

Reflecting the approach taken by Morgan Stanley, the Inquiry has focused on options that:

- best address the identified conditions
- are available to the NSW Government to implement unilaterally and at its own discretion
- can be implemented in a timely manner to facilitate the required investment in generation capacity to meet the State’s emerging supply needs.

The Inquiry concurs with Morgan Stanley’s definition of ‘actions available to NSW’ with the NSW Government having:

- shareholder control over the SOCs ¹⁰ (within the constraints of the governance mechanisms under the State Owned Corporations Act, 1989)
- policy control over State-based policy
- no unilateral influence over NEM-wide issues, but formal influence through the MCE
- influence but no control over other issues such as potential emissions schemes introduced by the Commonwealth Government.

When considering ‘options that best meet the identified conditions’ the Inquiry was careful to relate those conditions and corresponding options back to the fourth term of reference - ensuring the State’s emerging generation needs are meet in a manner consistent with maintaining the State’s credit rating.

Reflecting the findings of Chapter 6, the Inquiry considered the key objective when assessing the options was ‘does the option ensure the private sector will invest in the State’s emerging generation needs? Inherent in this objective is that such private sector investment occurs in an efficient manner that will ultimately promote competitively priced electricity for NSW residents.

Assessment of the options focused on their ability to address the issue underlying the identified conditions – turning any current policy and regulatory uncertainty into commercial risk that can be quantified and managed by the private sector. The greater the options do this, the greater their ability to:

- create interest by greater rather than lesser numbers of potential investors in generation; and
- give those potential investors stronger rather than weaker incentives for investment in all types of generation.

**How can government maximise potential investors?**

The Inquiry considers that the incentives to invest will be strongest when market conditions allow for a diversity of:

- generation investment business models
- generation technology types
- generation fuel sources.

**Transfer interests in the State-owned retail operations to the private sector**

Selling the State’s retail operations would increase the private sector’s commercial exposure to the retail load in New South Wales and facilitate businesses adopting a vertical integration approach to underwrite investment in generation capacity in the State. Businesses that are exposed to a critical mass of retail load would have strong incentives to invest in new generation as part of their overall risk management strategy.

**Transfer the interests in the State-owned generators to the private sector**

This would increase the private sector’s commercial exposure to generation output in New South Wales and facilitate businesses adopting a generation portfolio approach to underwrite investment in generation in the State. Businesses that have existing power stations would have strong incentives to invest in new power stations as part of their overall risk management strategy.

The Inquiry notes that the generators should be sold to the private sector. In the event that the Government does not wish to sell generation, then appropriately structured long-term leasing of current generation assets should be considered as a viable alternative.
The Inquiry recommends transferring both retail and generation to the private sector as this would:

- maximise the likelihood of private investment in generation consistent with the State’s emerging generation needs
- increase the number of companies potentially operating in the electricity sector in New South Wales i.e. both the retail-long and generation-long incumbents would have an incentive to invest in generation in New South Wales
- maximise the incentive for a new entrant in the State’s electricity sector
- avoid either an erosion in value of the State-owned retail and generation businesses or a substantial State funded investment program in these businesses.

This will provide the highest level of confidence to the private sector that the Government will not unduly intervene in the market with government supported investment in generation capacity. Including the State-owned sites will also provide favourable development opportunities to potential power station investors.

**Encourage the Commonwealth Government to determine an emissions trading scheme**

In the absence of greater certainty, it is less likely that the market will make the most efficient decisions in new generation investment. An appropriate emissions trading regime should allow for investment in a range of generation types. The Commonwealth Government should bring forward the timetable for establishing a national emissions trading scheme.

**Transfer State-owned generation development sites to the private sector**

The Government currently owns a number of potential generation development sites that are suitable for coal and gas-fired power stations. The Government should encourage the SOCs to submit all sites for development application. Making these sites, with development approvals, available to the private sector will ensure coal-fired and gas-fired generation technologies are available to potential power stations developers.

**Improve the State’s planning approval for new power stations**

Improvements to the State’s planning approval process should be conscious of the need to assess coal-fired, gas-fired and renewable power stations on an equal footing.


**How can government privatise its interests?**

Recognising the significance of the keys findings of this Inquiry and the recommendations that Government should divest itself or its retail and generation interests – the mechanism that in the past has ensured the adequate generation supply to the State – the Inquiry has considered two key issues:

- what does transferring the State’s retail and generation interests involve
- will divesting both the State's retail and generation interests maximise the value of these assets to the NSW Government.

**Retail**

The retail operations are a small component of EnergyAustralia, Country Energy and Integral Energy. Around 10 per cent of these businesses’ operations and staff are retail related. The balance of the business is involved in owning, operating, maintaining and developing electricity infrastructure (i.e. ‘poles and wires’).

Importantly, the retail operations do not own any energy infrastructure. Their main assets are computers systems (eg. billing and payment systems). The existing State-owned electricity businesses will continue to own the ‘poles and wires’, and will be entirely focused on maintaining the reliability of the State’s electricity distribution network.

The Inquiry considers the electricity retail function comparable to a financial intermediary, much like a bank or an insurance company:

- they buy electricity on the wholesale electricity market, and enter into a range of financial hedge contracts to manage the price risk they are exposed to
- they ‘on-sell’ this electricity to customers at prices determined by the Independent Pricing and Regulatory Tribunal (IPART), or agreed under negotiated contracts between the retailer and it customers
- in doing this, retailers effectively manage their customers’ financial exposure to volatile wholesale electricity prices - so customers can have certainty of their electricity prices
- retailers also collect revenue for network charges, on behalf of the owners of the electricity transmission and distribution networks, so that both customers and energy sector participants can have the convenience of a single bill for both energy and network services.
To undertake these functions, retailers generally have the following staff and assets which comprise around 10 per cent of the three State-owned retailers:

- staff who trade electricity, by monitoring the retailer’s wholesale purchase requirements and entering into financial hedges with other parties to manage the associated risk
- sales and marketing staff, who market the retailer’s ‘products’ to potential customers, in both New South Wales and inter-state
- customer service functions - call centres to take product and billing inquiries (these call centres often also handle inquiries relating to the network business eg. supply interruptions)
- billing functions - computer systems which retrieve and store customer consumption data and generate bills (these billing systems sometimes also handle billing procedures associated with the network business)
- revenue collection functions - payment systems which collect payments from customers (cash, cheque and electronic) and record them against the appropriate customer accounts.

**Generation**

The most effective method to divest the State’s generation interests is to sell the State power stations. This will give the private purchaser full exposure to the financial risks and benefits of generation, and provide an effective platform from which to build new generation capacity. The private sector is much more likely to build if it can operate new generation as part of a portfolio with existing generation assets.

However, the Inquiry is of the view that appropriately structured long-term leases could be used to transfer the State’s economic interest in generation to the private sector. To ensure that the private sector gets full financial exposure to generation, and therefore has the strongest incentives to build new generation, the leases will give the lessee:

- a term that exceeds the estimated remaining life of the existing generation assets, and any upgrades / improvements / additions the private sector may make on the generation site
- full rights to bid and contract the output of the power stations, subject to whatever contractual obligations are currently in place (e.g. long-term power supply agreements) which will be transferred to the lessee
- responsibility for the day-to-day operations of the power station
- responsibility for sourcing future fuel supplies for the power station, along with the benefits and obligations of existing fuel supply contracts
- responsibility for maintaining the power station, and the right to invest extra capital to upgrade units or build new units on the power station site
- exposure to the risk of future market-related policies and instruments (e.g. carbon trading).

In exchange for the financial benefits of the generation assets, the lessees will be required to make ongoing lease payments (or an equivalent up front payment) to the Government i.e. the Government will effectively swap its current exposure to the variable financial performance of the generation businesses to a pre-agreed payment stream from the lessees.

**Divesting both retail and generation is necessary**

At a market level, the interaction of the demand for contracts (from retailers) and the supply of contracts (from generators) means there should always be more generation capacity in the system than expected demand.

Although, retailers tend to take a conservative approach to contracting - they would rather be over-hedged (i.e. contracted for slightly more than their expected retail load) than under-hedged, because the financial consequences of being ‘caught short’ at times of peak demand are large.

Parties with significant exposure to retail load will ensure there is always enough generation capacity - they will ‘keep the lights on’. Retailers are financially exposed to high and volatile power prices during times of peak demand, when prices can reach $10,000/MWh (i.e. over 200 times average power prices). This gives them every reason to build generation plant to cover their risk. The financial consequences of not being hedged at peak times are so significant, that they can’t afford to “let the lights go out”. Retailers’ incentives to ensure enough generation capacity at all times are fully aligned with the Government.

Generators, on the other hand, will tend not to contract all their capacity - they will usually keep at least one unit uncontracted, because if there is an unexpected outage they will be forced to buy power on the spot market (at potentially very high prices) in order to fulfil their contractual obligations to retailers.

Portfolio generators will continuously look for opportunities to improve the efficiency of existing generation capacity, and to invest in new efficient plant as demand grows – this investment will put downward pressure on power prices.
While retailers are focused more on risk management and their total margins, generators, on the other hand, will continuously look to reduce their costs and expand their generation market share – they will improve the availability of their existing plant, and invest in new units at the appropriate time.

If a portfolio generator doesn’t invest, their competitors or new entrants will, which means their market share will be reduced – the threat of competing investment drives their commercial incentives to invest and keep investing over time.

As demand grows, the peaking plant developed by retailers will tend to run at higher and higher capacity factors, resulting in average power prices trending upwards. This will create commercial opportunities for portfolio generators to introduce more baseload capacity at the bottom end of the cost curve which will have the effect of putting downward pressure on power prices.

Generators are incentivised to diversify their risk over time by developing their portfolio. The more units they have the less they are exposed to the risk an individual unit fails, or a transmission outage, or they suffer from drought effects. A single unit or plant is more risky than a portfolio.

However, not all generators want to be or are retailers. Only by divesting the retail and generation will ‘generator only’ businesses have access to generation portfolio benefits in New South Wales.

Further generators, have a wide range of technical skills and have more coal-fired skills than at least some of the retailers. Selling generators will allow these ‘generation only’ businesses to utilise their skills and experience in order to maximise fuel-on-fuel competition, and ensure the widest range of coal and gas generation development opportunities are available in New South Wales.

**Will divesting maximise the value of NSW assets?**

The Inquiry has considered the following scenarios for private sector funding:

- a sale of the State’s generation interests
- a sale of the State’s retail interests
- a sale of both the State’s retail and generation interests.
Divesting generation interests will realise market value

For the purpose of this discussion the Inquiry considers a lease of generation assets, almost equivalent to a sale of physical generation assets, in terms of ensuring private sector investment in new generation and realising value.

Such a scenario will provide an opportunity for the State to realise the current market value of the generation SOCs. Under this scenario, the private sector will take a long generation position that will make further private sector investment in generation more attractive through realising generation portfolio benefits. While this mitigates the need for the Government to fund new generation, it will expose the retail SOCs to adverse value impacts overtime as they continue to operate in an increasingly competitive market.

Under this scenario, the most likely acquirers include the current large vertically integrated energy businesses. The SOC retailing businesses do not own generation assets and hence will not be competitive with the larger vertically integrated private sector players. This position will be exacerbated if the large integrated businesses acquire and build the next tranche of generation in New South Wales as it will increase the scale and scope of these businesses. Consequently, they will become increasingly competitive on a cost-to-serve basis (in particular in New South Wales with the construction of physical generation in the State) compared to the SOC retailers.

As a result, the customer base of the retail SOCs will be progressively eroded over time as larger competitors churn more profitable customers, leaving the State with declining retail revenues and fixed costs. Consequently, the value of the SOC retailers will decline over time (without significant equity injections and permission to aggressively grow the businesses) and the State will be potentially required to write down the value of these assets on the State’s balance sheet. This will have an adverse impact on the State’s fiscal position and credit rating.

However, the Inquiry notes that even where the economic interests in the State-owned generators are not sold and/or equity is injected into the retail businesses, the value of the retail SOCs under continued Government ownership will likely decline. In particular, Country Energy and Integral Energy are currently sub-scale on a customer number basis and along with EnergyAustralia, operate under a superseded business model with higher operating costs per customer than their larger competitors.
Consequently, the NSW retail businesses have average EBITDA\(^{11}\) retail margins around 2 per cent compared to AGL and Origin Energy forecasting margins of around 7 to 8 per cent.

**Selling retail businesses will benefit NSW**

Selling the retail businesses will provide an opportunity for the State to realise the current market value of the energy retail SOCs. This ‘crystallisation’ of current value will benefit the State’s:

- immediate to medium fiscal position as it will allow equity locked up in the energy retail SOCs to be reallocated towards strengthening the State’s fiscal position, with minimal off-setting reductions in financial distribution receipts;

- medium to longer term fiscal position by mitigating the potential erosion of the value of the energy retail SOCs on the State’s balance sheet. Continued Government ownership of the SOC retailers – even where they receive equity to grow and/or the State funds new generation – cannot insure against a decline in value of these businesses over time as they operate in an increasingly national and competitive market.

Conversely, transferring the energy retail SOCs to the private sector will provide an opportunity to realise funds that can be used to reduce State debt – in turn strengthening the State’s fiscal position and its capacity to deliver services. Given projected low (and deteriorating) retail margins, the resultant reductions in General Government interest costs are expected to significantly outweigh foregone retail tax equivalent and dividend payments.

Similar to the generation case, transferring only one component of the competitive electricity supply chain, in this case retail, may leave other sectors, in this case generation, exposed to an increasingly competitive and likely integrated national market.

The potential impact on the SOC generators is likely to be less immediate and sizeable than compared to the retailers. Investment in new generation will likely subdue wholesale market prices for a period after the investment (recognising the lumpiness of investment in new generation) therefore reducing the prices SOC generators are able to earn on their output. However, this is a natural function of the gross pool energy market and would occur regardless of whether the public or private sector invested in new generation.

Secondly, regardless of new private sector investment in generation, the SOC generators (and any generator in the market) should always be subject to equivalent commercial pressures. Essentially, the price of energy should always be influenced by the market entrant cost for a new generator.

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\(^{11}\) Earnings before Interest, Tax, Depreciation and Amortisation
However, despite this, private sector investment in generation in New South Wales will likely have an adverse impact on the value of the SOC generators, as the price for their hedge contracts may decline as they cannot capture the ‘vertical integration’ premium that is available to their major counterparties to these contracts. These counterparties will always have the option of constructing their own generation plant in New South Wales and will only contract with SOC generators up to their internal build price.

This potential loss in value of the generation sector, due to their inability to capture a vertical integration premium for their hedges, can of course be recovered by subsequent sale of the generators.

Despite this, selling the retail activities (and generation development sites) will only negatively affect on the value of the State-owned generators by curtailing their growth options.

Privatising both the retail and generation businesses will:

- avoid potential adverse impacts on either the generation or retail SOCs under either of the scenarios considered above; and
- maximise the potential sale value of the generation and retail energy SOCs to New South Wales, primarily through increasing the bidder field and consequently competitive tension for the NSW assets.