Electricity Supply Industry Expert Panel

A Review of the Efficiency and Effectiveness of the State Owned Electricity Businesses

December 2011
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## Glossary

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<th>TERM</th>
<th>MEANING</th>
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<tr>
<td>ACCC</td>
<td>Australian Competition and Consumer Commission</td>
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<td>AEMC</td>
<td>Australian Energy Market Commission</td>
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<td>AEMO</td>
<td>Australian Energy Market Operator</td>
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<td>AER</td>
<td>Australian Energy Regulator</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
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<td>CSC</td>
<td>Customer Service Centre</td>
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<td>EBSS</td>
<td>Efficient Benefit Sharing Scheme</td>
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<td>GW</td>
<td>Giga Watt</td>
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<td>GWh</td>
<td>Giga Watt Hours</td>
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<td>ITOMS</td>
<td>International Transmission Operation and Maintenance Study</td>
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<td>MW</td>
<td>Megawatt</td>
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<td>MWWh</td>
<td>Megawatt Hour (=1 thousand kWh)</td>
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<td>NEM</td>
<td>National Electricity Market</td>
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<td>NER</td>
<td>National Electricity Rules</td>
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<td>OTTER</td>
<td>Office of the Tasmanian Energy Regulator</td>
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<td>PB</td>
<td>Parson Brinkerhoff</td>
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<td>SAIDI</td>
<td>System Average Interruption Duration Index</td>
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<td>SAI FI</td>
<td>System Average Interruption Frequency Index</td>
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<td>SOEB</td>
<td>State Owned Electricity Businesses</td>
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<td>STPIS</td>
<td>Service Target Performance Incentive Scheme</td>
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<td>TEC</td>
<td>Tasmanian Electricity Code</td>
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<td>TER</td>
<td>Tasmanian Economic Regulator / Tasmanian Energy Regulator</td>
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<td>TESI</td>
<td>Tasmanian Electricity Supply Industry</td>
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<td>TNISP</td>
<td>Transmission Network Service Provider</td>
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<td>TVPS</td>
<td>Tamar Valley Power Station</td>
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Foreword

In October 2010, the Tasmanian Parliament passed the Electricity Supply Industry Expert Panel Act 2010 to establish an independent expert panel to conduct a review into, and provide guidance to Parliament on, the current position and future development of Tasmania’s electricity industry. As part of the review process, the Panel is releasing a series of Papers which are intended to foster a shared understanding of the electricity industry’s past and present, as a precursor to considering the industry’s future.

Alongside the legislative foundation for the establishment of the Panel, the Tasmanian Parliament tabled a Terms of Reference for the Review. Specifically, Terms of Reference number one requires the Panel to investigate and report on the current efficiency and effectiveness of the Tasmanian energy industry, with particular reference to the existing regulatory framework and the cost of the energy industry elsewhere in Australia.

To assist with this part of the work program, the Panel engaged consultants Wilson Cook to undertake a high level analysis of the efficiency and effectiveness of the State-owned Energy Businesses, Hydro Tasmania, Transend and Aurora Energy, with focus on the core hydro-generation, transmission and distribution network and retail functions.

The purpose of this Information Paper is to provide a review of the technical efficiency and financial effectiveness of the provision of these core functions, both within the State Owned Energy Businesses (SOEBs) over time and compared to the provision of similar functions elsewhere in Australia, and where appropriate, New Zealand.

John Pierce  
Chairman  
Electricity Supply Industry Expert Panel
Executive Summary

Why efficiency matters

As noted in the Panel's Issues Paper, the Panel is of the view that the Tasmanian electricity supply industry (TESI) will make the best contribution to the growth and development of Tasmania, and to the economic welfare of Tasmanians, if it is operated on the most economically efficient basis possible.

Viewed from a customer perspective, the efficiency of the SOEBs is a key driver of electricity prices.

This is particularly the case for the regulated sectors, such as the network businesses, where regulatory frameworks can be effective in protecting customers from the worst aspects of the absence of market forces. However, they are generally less effective in actively driving high levels of productivity.

Once regulatory parameters are set (for example, in the case of network entities, regulated operating cost allowances are set for a 5-year period), the actual performance of the network businesses does not have a bearing on prices to customers, at least in the short term. In this context customers arguably should be at least as focussed on the effectiveness of the regulatory process in 'allowing' efficient costs as they are on the performance of the regulated businesses in meeting those allowances.

For those aspects of the TESI that are subject to competitive forces, prices are set independent of an individual business' costs. However, where competitive forces are relatively weak or the market is illiquid, there is real possibility of customers facing higher costs through inefficiencies.

In Tasmania, customers have seen relatively low levels of competition in the market and as such, Tasmanian customers could be expected to have greater interest in business efficiency than would be the case if high levels of competition existed.

From a shareholder perspective, the efficiency of a business is critical regardless of whether it is regulated or market based, as efficiency drives the financial performance of the business and the ability of the business to provide shareholder returns and enhance business value.

In the Tasmanian context, where electricity supply businesses are State-owned, Government, Parliament and taxpayers all have an interest in seeing the businesses perform well from both an efficiency and effectiveness point of view.

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1 Noting that the Tasmanian community are the ultimate owners of the SOEBs.
The key conclusion is that efficiency is of prime importance from two perspectives:

- It can influence the price setting framework depending on the effectiveness of the regulatory framework or the effectiveness of market mechanisms.
- It contributes to the financial stability of the SOEBs and drives shareholder value which can be returned to the Tasmanian community through dividends.

The extent to which high productivity is achieved remains one of the predominant tasks of management, overseen by the Boards of the SOEBs. Therefore, it remains a priority for Boards to ensure that policies are in place that focus business culture and performance on productivity issues. This Paper explores the extent to which this has been evident in the SOEBs.

There is also a role for shareholders, in the case of the SOEBs, the responsible/shareholding Ministers (the Treasurer and the Minister for Energy) on behalf of the community, to ensure that Boards are clearly focused on achieving high levels of productivity to achieve sustainable financial returns. Through a focus on driving Boards to achieve efficiencies, governments are best placed to achieve other policy objectives, such as minimising pricing pressures on electricity users. The Panel has investigated how the Tasmanian Government, as shareholder, has sought to influence the SOEBs to drive efficiency and effectiveness.

**The Panel’s approach**

In this Paper, the term ‘efficiency’ is related to all aspects of the business that impact on costs and is a measure of the extent to which activities are carried out at least cost.

The Panel has taken as a given the outcomes of previous assessments undertaken by expert regulators on efficient costs - and has not sought to reconsider or remake these judgements. The Panel’s focus has been the extent to which the SOEBs have operated within these regulatory determinations as a primary indicator of efficiency. Where efficient benchmarks through regulatory approaches are absent, the Panel has examined cost trends within the SOEBs, and where practicable, peer comparisons, to examine efficiency measures.

The Panel has defined the ‘effectiveness’ to be the extent to which SOEBs are contributing towards the continuity and quality of electricity supply - or in other words its technical performance. The various functions of the electricity supply chain; generation, transmission, distribution and retail services have specific measures to assess the extent to which individual contributions meet standards necessary to achieve overall performance. The Panel has observed how performance has tracked over time, and how it compares with peers, in order to examine effectiveness.

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2 This is important given the broader economic importance of SOEBs beyond dividend payments to the Budget.
Findings in relation to effectiveness

In general terms, the Panel has concluded that the effectiveness, or technical performance, of the electricity supply industry in Tasmania is good and generally comparable to the average effectiveness of the industry in other states. In particular the Panel has concluded that:

- The technical performance of Hydro Tasmania’s generating plant currently meets the requirements of its participation in the NEM, particularly from a risk management perspective (being able to physically back its market positions). Any ongoing significant deterioration of performance could be an indicator that the current asset management strategy was risking long term asset value. In its annual review and update of its Ten-Year Asset Management Plan, Hydro Tasmania should ensure that performance of its assets are maintained and improved.

- The transmission network operated by Transend is performing satisfactorily and improving by comparison with peer entities. There remains scope for further improvement, although this is an economic question of the cost of further capital investment required to increase reliability levels.

- Aurora Energy’s distribution network effectiveness is currently adequate and while community based targets for improvements are in place it remains to be seen if this approach results in average performance improvements. The declining trend in service levels for urban areas is a matter that should be addressed to ensure that improvements in rural performance are not delivered at the cost of effectiveness for the majority of customers.

- Aurora Energy’s retail’s performance in terms of customer service measures appears to be relatively stable, and may require additional focus in the event that full retail contestability is introduced.

Findings in relation to efficiency

The Panel’s assessment of efficiency is less clear cut. The benchmarking of operating expenditure, and particularly capital expenditure, is more problematic than benchmarking technical performance, due to the differences in scale, operating environment and industry structure.

In relation to Hydro Tasmania, there has been a sustained focus on reducing operating costs, with three efficiency programs implemented over the past eight years, the latest of which aims to reduce operating expenses to around 80 per cent of current levels.
A primary driver for improvements in efficiency within Hydro Tasmania has been the scarcity of capital to fund capital investment and growth strategies, which was compounded by the drought in 2007 and 2008. Capital constraints have also incentivised Hydro Tasmania to achieve more efficient delivery of major capital projects.

Transend’s operating costs are higher than its peers (in part reflecting scale dis-economies) and have grown at a higher rate over the period 2004-05 to 2008-09. Transend made a considered decision to spend above the regulatory allowances, based on its view that the regulatory determination was unsustainable. Over that period, Transend’s operating costs were $28 million, or 16 per cent higher than its allowance.

Transend’s performance relative to its operating allowances has improved with its 2009 regulatory determination, which saw a 40 per cent increase in its operating cost allowance. Transend has operated within the allowance for the past two years.

In relation to capital spending, Transend’s capital program exceeded its regulatory capital allowance by around 10 per cent over the period 2004-05 to 2008-09. The AER subsequently undertook a detailed ex-post review of capital projects over that period and found that the capital expenditure was prudent.

Aurora Energy’s distribution business has also had a history of overspending regulatory allowances, but to a smaller degree than Transend. Over the period 2004 to 2009-10, the distribution business overspent its operating allowances by a nominal $14 million, which represents four per cent of total allowed expenditure, with a key driver of this being emergency repair and response costs. Aurora Energy’s regulatory proposal that is currently being considered by the AER indicates that the business is seeking to deliver real operating cost decreases over the period 2012-13 to 2016-17 period. Significant changes are emerging within the distribution business that indicates there is a commitment to deliver on the productivity savings that underpin the regulatory proposal. The AER’s draft determination was released in November 2011, and the AER has proposed to reduce the proposed level of operating expenditure by $36.5 million (nominal) over the forthcoming regulatory period.

In relation to capital spending, Aurora Energy’s distribution business has consistently exceeded its regulated allowance, spending $208 million above its total allowance of $535 million over the period 2004-2010. Around half of the additional spending was a result of customer-driven capacity developments.

Aurora Energy’s retail business has been unable to operate within its regulatory operating allowance with respect to the non-contestable customer base. The Panel understands that in the competitive contestable market, there have been strong pressures on retail margins to maintain market share. Aurora Energy has developed a strategy to reduced costs in line with regulated cost to serve levels, and the first phases of that strategy have been implemented.
The major capital expenditure program related to the retail business over the review period was the customer information and billing system project. This project was highly complex, under-scope and poorly managed, particularly in the period before January 2010. Because of the large differences between the eventual costs of the system and allowance permitted under the regulatory arrangements and as a result of capitalisation tests under the accounting standards, the project has had a large negative financial consequences for the business, with around $32 million in project costs being written off.

Overall, taking previous detailed regulatory determinations as the benchmark for efficiency, the Panel has not been able to conclude that regulated aspects of the SOEBs have been operating efficiently over the review period.

The financial consequences of this have primarily been borne by taxpayers as owners of the businesses through lower returns, rather than by electricity customers through higher prices. This is further discussed in the Panel’s Information Paper on the Financial Position of the SOEBs. Where subsequent regulatory determinations have been undertaken to reconsider efficient costs and allowances ‘reset’ at higher levels, there have been price impacts on electricity customers, but only to the extent that regulators have determined costs to be efficient.

The approach taken within the SOEBs towards efficiency and effectiveness is, in the Panel’s view, the fundamental driver of performance. It shapes the way in which the regulated businesses approach and operate within the regulatory framework and, together with competitive forces, drives performance for the market-facing SOEBs.

There has been a mix of approaches across the portfolio in relation to driving efficiency over the past decade, and the focus on efficiency has varied within parts of the businesses.

The apparent willingness of the regulated businesses to regularly overspend regulatory allowances and preparedness by Boards and the Shareholders to accept the financial consequences of this through poor financial performance and lower returns to the Budget has not created an environment where there is a consistent focus on driving business performance.

The Panel notes that more recent changes in regulatory incentives and governance arrangements have sought to address this to some extent.

The nature of the cultural change currently evident within Aurora Energy provides an indication of the preferred approach to business management with a strong focus on efficiency. While that has arguably been available across the portfolio, until recently it has not been a strong focus, at least not uniformly. It is notable that in Aurora Energy’s case, the driver for improved efficiencies has not been prompted by the economic regulatory framework. Rather it has been prompted by a combination of personnel change, technological change and a change in the strategic direction of the company.
The Panel has sought to determine why such initiatives haven’t been a consistent and prominent feature of business activity in the past. The Panel has concluded that:

- The process by which businesses are licensed by the TER, and which is aimed in part to promote efficiency in the electricity supply industry, does not of itself require efficiency improvement programs to be implemented or provide a particular focus for Boards or management to drive business performance.

- Revisions to the regulatory framework in 2008 and 2009 provide more comfort that regulatory allowances permit network businesses to recover their efficient costs, and provide stronger incentives to outperform expenditure and service targets.

- While Ministerial Charters and Letters of Expectation have contained broad expectations that SOEB Boards will conduct their businesses efficiently, they are pitched sufficiently broadly that specific expectations are not established.

- Annual Shareholder letters associated with the development of corporate plans have required businesses to operate efficiently and, more recently, formalised expectations for the businesses to instigate and report on specific programs.

- Although businesses have tended to respond positively to these specific requests, there does not appear to have been a process developed for reporting the details of the program, or programs, so developed or of the success or otherwise of the programs.

- The extent to which Boards have taken responsibility for initiating efficiency or productivity improvements, rather than executive management, is difficult to determine given the generally cooperative approach to strategic planning undertaken by the businesses. The Panel is of the view that Boards should be taking a predominant role in ensuring an efficiency focus is initiated and appropriately measured.

Of particular importance in driving business technical and financial performance is the establishment of accountability and incentive frameworks that provide a ‘clear line of sight’ between Shareholder expectations and the regulatory framework on the one hand, and Board, management and staff performance on the other.

The Panel has not reviewed in detail the effectiveness of the performance monitoring frameworks employed in the different parts of each of the SOEBs, but notes that these do variously exist. The Panel’s view is that it is important that these frameworks are regularly independently (of management) reviewed by either Boards or Shareholders to ensure that there remains strong alignment between the incentives faced by individual employees, management and the Board in driving outcomes that are consistent with regulatory requirements and Shareholder expectations.
The Panel considers that Shareholders could have been more active in driving accountability for efficiency and effectiveness over the past decade. The Panel has been left with the impression that until recently, there has been a relatively low level of engagement between Shareholders and the businesses in efficiency-related matters and that Shareholders have taken the view that the economic regulatory environment and independent regulators will provide the dominant drivers for SOEBs efficiency and effectiveness.

The regulatory framework can, at best, provide a level of assurance that businesses not exposed to competitive disciplines are not able to routinely operate at generally inefficient levels.

Optimising business performance within the broad parameters established by the economic regulatory environments remains the domain of management and Boards, with Shareholders providing the ultimate incentives and sanctions for efficiency and effectiveness. Developing and maintaining a focus on maximising efficiency and continual improvement in reducing costs is critical and has not been consistently evident across the portfolio over the review period.

The Panel notes that in relatively recent times, this has become more of a focus in the broad corporate governance arrangements between Boards and Shareholders in the SOEBs, and highlights this as a key area of governance reform for the SOEBs.

Finally, in any business, an important challenge for management is resolving the tension between meeting performance standards on the one-hand and managing costs and the consequences for prices. Similarly, there are tensions between investment in asset replacement and renewal and higher maintenance costs. The tension is evident in the SOEBs.

In the case of Hydro Tasmania, decisions have been made within the business to deferred capital expenditure on maintaining core hydro generation assets to provide financial headroom for other investment activities. A key judgement is that the proceeds from the reinvestment of these funds into other activities will offset the short-term negative impacts from this strategy, and that expected improved financial outcomes will enable Hydro Tasmania to ‘catch-up’ the deferred expenditure. Hydro Tasmania considers this strategy to be prudent, particularly given the strategy is reviewed annually, with the potential to increase investment if funds are available (as has occurred).

Closely examining the risks and returns from capital spending and the appropriateness of potential maintenance expenditure are characteristics of a well performing businesses – they are consistent with an approach focused on efficiency and effectiveness. A key issue that arises from Hydro Tasmania’s asset management strategy is that its success is dependent on growth in future revenue streams that have accompanying risks. Those future revenue streams also have alternative uses, both within the business and from a shareholder perspective.
Decisions around capital expenditure, particularly where it relates to core assets versus diversification and growth strategies, are one of the inherent reconciliations that need to be made in providing scope to SOEBs in planning business strategy and performance. Having a very clear understanding of the purpose of the SOEBs and what government is seeking to achieve through its ownership of them is a key foundation in resolving these tensions. This is addressed further in the Panel’s Draft Report.
1. Objectives and Structure

The purpose of this Paper is to address the Panel’s Term of Reference number one, being ‘the current efficiency and effectiveness of the Tasmanian energy industry with particular reference to the existing regulatory framework and the cost and operation of the energy industry elsewhere in Australia’.

The Panel has interpreted this Term of Reference as relating to the core Tasmanian operations of the SOEBs, being hydro-generation, transmission and distribution networks and retail functions, and in particular to the technical and cost-related performance issues.

The Panel’s investigation excludes matters related to Hydro Tasmania’s retail business Momentum, wind farm developments through Roaring 40s, consulting services through Entura; and Aurora Energy’s telecommunication business and operation of the Tamar Valley Power Station. These activities are addressed elsewhere in the Panel’s work program. The financial performance of the SOEBs, including capital structure, investment and returns to shareholders are addressed in a separate Information Paper. Specifically, this paper sets out:

- Chapter 2 outlines the Panel’s approach to the investigation, its interpretation of the terms efficiency and effectiveness; and discussion on how efficiency and effectiveness are influenced in both regulated and market based businesses models.

- Chapter 3 discusses the key elements of the Panel’s investigation and the methodology for collecting and analysing information related to the task.

- Chapters 4 to 7 present the findings of the investigation for each of the businesses; Hydro Tasmania, Transend, and Aurora Energy - Distribution and Retail.

- Chapter 8 contains a summary of conclusions and reports on issues which impact on each of the businesses or influence relationships between them.

Unless otherwise noted, all dollar figures in this Paper are expressed on a nominal basis and dates represent the associated financial year.
2. Definition of Terms and Approach

2.1. The Importance of Efficiency

As noted in the Panel’s Issues Paper, the Panel is of the view that the electricity industry will make the best contribution to the growth and development of Tasmania and to the economic welfare of Tasmanians if it is operated on the most economically efficient basis possible.

Viewed from a customer perspective, the importance of the efficiency of an individual business is linked to the effectiveness of the markets in which the business operates. A strongly competitive market, where prices are set independent of an individual business’ costs will mean that customers do not bear the consequences of poor performance. Where competitive forces are relatively weak or the market is illiquid, as is the case in Tasmania, there is real possibility of customers facing higher costs through inefficiencies being passed through in prices.

In relation to the regulated sectors, customers should consider efficiency quite important for a regulated business because of the absence of external forces, other than the regulatory framework, for driving efficiency. Regulatory frameworks can be effective in protecting customers from the worst aspects of the absence of market forces, but they are generally less effective in actively driving high levels of productivity in the regulated businesses.

Once regulatory parameters are set (for example, in the case of network entities, regulated operating cost allowances are set for a 5-year period), the actual performance of the regulated entities does not have a bearing on the prices paid by customers, at least in the short term. In this context, for the regulated sector, customers arguably should be at least as focussed on the effectiveness of the regulatory process in ‘allowing’ efficient costs as they are on the performance of the regulated businesses in meeting those allowances.

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3 Economic efficiency can be considered from three dimensions: technical/productive efficiency (producing at least cost); allocative efficiency (that resources are used in the highest value activity); and dynamic efficiency (the ability of a business/sector to respond and adapt over time). The aspect of efficiency that this paper is primarily focused on is technical efficiency.

4 There remains a very real risk that inefficiencies prevalent within a regulatory cycle can be built into subsequent determinations.
In Tasmania, customers have seen relatively low levels of competition in the market and have experienced situations where rising expenditures in regulated businesses have been reflected in higher prices. As such Tasmanian customers could be expected to have greater interest in business efficiency than would be the case if high levels of competition existed or if the regulatory apparatus had a strong weighting on industry-wide best practice performance\(^5\) and was better able to drive productivity improvements.\(^6\) Any consideration of industry-wide best practice performance must still be able to adjust for the specific operating environment of a business, including the different jurisdictional obligations network businesses in the NEM face.

From a **shareholder perspective**\(^7\), the efficiency of a business is critical regardless of whether it is regulated or market based, as efficiency drives the financial performance of the business and the ability of the business to provide shareholder returns and enhance business value.

In the Tasmanian context, where electricity supply businesses are State-owned, Government, Parliament and taxpayers all have an interest in seeing the businesses perform well from both an efficiency and effectiveness point of view.

The key conclusion is that efficiency is of prime importance from two perspectives:

- It contributes to the financial stability of the SOEB\(^8\) and drives shareholder value which can be returned to the Tasmanian community through dividends.
- It can influence the price setting framework depending on the effectiveness of the regulatory framework or the effectiveness of market mechanisms.

Electricity supply business efficiency is highly dependent on labour and other resource productivity. In both regulated and market based business models, the extent to which high productivity is achieved remains one of the predominant tasks of management. Therefore, it remains a priority for Boards to ensure that policies are in place that focus business culture and performance on productivity issues.

There is also a role for shareholders, and in the case of State-owned businesses, the responsible/shareholding Ministers (the Treasurer and the Minister for Energy) on behalf of the community, to ensure that Boards are clearly focused on achieving high levels of productivity to achieve sustainable financial returns. Through a focus on driving Boards to achieve efficiencies, governments are best placed to achieve other policy objectives, such as minimising pricing pressures on electricity users.

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\(^5\) It is noted that the AER is required to take into account industry benchmarking when undertaking a determination.

\(^6\) For example, the national network pricing arrangements impose an assumed capital structure for network businesses when the AER is required to determine the weighted average cost of capital. This may weaken the incentive for network businesses to shape capital structures to achieve entity-specific rates of return.

\(^7\) Noting that the Tasmanian community are the ultimate owners of the SOEBs.

\(^8\) This is important given the broader economic importance of SOEBs beyond dividend payments to the Budget.
Moreover, two considerations must not be overlooked:

- The proper functioning of the regulatory framework to provide strong incentives for efficient service delivery and avoiding the worst elements of the absence of competitive forces.
- Ensuring that the underlying architecture in the market-related aspects of the energy supply industry contain effective competitive pressures to drive efficiency and productivity.

These are important considerations, and are matters that the Panel addresses in its Draft Report.

The Panel has defined the ‘effectiveness’ of the SOEBs as a measure of the extent to which it contributes towards the continuity and quality of electricity supply - or in other words their technical performance. The various functions of the electricity supply chain; generation, transmission, distribution and retail services have specific measures to assess the extent to which individual contributions meet standards necessary to achieve overall performance.

In this Paper, the term ‘efficiency’ is related to all aspects of the business that impact on costs and is a measure of the extent to which activities are carried out at least cost.

As highlighted in the Panel’s Statement of Approach\(^9\), the Panel has taken as a given the outcomes of previous assessments undertaken by expert regulators on efficient costs - and has not sought to reconsider or remake these judgements.

The Panel’s focus has been the extent to which the SOEBs have operated within these regulatory determinations as a primary indicator of efficiency. Where efficient benchmarks through regulatory approaches are absent, the Panel has examined cost trends within the SOEBs, and where practicable, peer comparisons, to examine efficiency measures.

As noted in the Panel’s Issues Paper\(^10\), the Panel is of the view that the Tasmanian Electricity Supply Industry (TESI) will make the best contribution to the growth and development of Tasmania, and to the economic welfare of Tasmanians, if it is operated on the most economically efficient basis possible.

Establishing the comparative performance of the SOEBs with Australian contemporaries may be problematic given differences in industry nature, size, and structure in Tasmania. It is, therefore, useful to complement such comparative analyses with observations of historical trends within each of the SOEBs to identify changes in their performance over time and the drivers of those changes.

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\(^9\) The Statement of Approach was released on 17 December 2010 and is available on the Panel’s website [www.electric.tas.gov.au/publications](http://www.electric.tas.gov.au/publications).

\(^10\) The Panel’s Issues Paper was released on 24 June 2011 and is available on its website.
The approach adopted by the Panel was to assess the performance of the SOEBs from two perspectives:

- A top down internal investigation into the historical and current effectiveness and efficiency, including the influence of regulatory arrangements.
- An assessment of the roles of executive management, boards and shareholders in driving improved performance, including by setting targets for effectiveness and efficiency, and initiating appropriate monitoring, reporting and evaluation mechanisms.

The Panel's approach has also recognised that the regulation of electricity supply businesses in Tasmania is evolving with the Australian Energy Regulator (AER) in the process of assuming the responsibilities of the Tasmanian Energy Regulator (TER) in the assessment of revenue allowance for Aurora Energy's distribution business. This change will take effect from July 2012. The AER assumed responsibility for the economic regulation of Transend from the Australian Competition and Consumer Commission (ACCC) in 2009.

In framing the overall assessment approach it has been necessary to recognise that the incentives for Tasmania’s SOEBs to continue to supply reliable and cost-efficient services are provided in combination by two key influences:

- the different (regulated and competitive) market models that apply to the businesses; and
- by the governance framework and obligations imposed on them by the Government as shareholder.

To drive efficiency and effectiveness, both are essential and need to work in a complementary manner.

These market and governance arrangements and the incentives and obligations they provide are outlined next in sections

### 2.2. Regulated Businesses

In the broad, the function of the economic regulatory framework is to provide a proxy for a competitive market. There are several key features:

- removing the scope for regulated entities to control prices;
- ensuring that regulated business are able to recover their efficient costs and earn an appropriate rate of return, thereby economic rents are not generated; and
- providing incentives and drivers for improved business performance, and for these to be passed through to customers over time.
Through the implementation of revenue/price caps for regulated services, which are based on the independent assessment of efficient costs (both operating costs and required capital investment), there is an incentive for profit maximising entities to perform at least to the assessed level of efficiency in order to earn the rate of return that forms part of the regulatory assessment.

Some regulatory arrangements provide specific mechanisms to incentivise the businesses to ‘outperform’ the regulatory allowances. For example, in the case of transmission pricing arrangements, the ‘Efficiency Benefit Sharing Scheme’ acknowledges additional savings in operating costs in each year of the regulatory period and effectively allows savings to be retained for a period of five years, even if this extends into the next regulatory period. There is also a Capital Expenditure Incentive which rewards transmission businesses for minimising or deferring capital expenditure.

While regulatory frameworks and regulatory entities seek to press for improvements in efficiency, it is generally beyond the scope of economic regulatory arrangements to establish and seek to impose the most efficient means of delivering outcomes on a business-by-business basis – this is legitimately the domain of management.

This is where the complementary influence of shareholders and the board, brings pressure to bear on driving business performance on regulated businesses. Ensuring that performance is at least consistent with, and where possible and sustainable, better than, requirements imposed through the economic regulatory frameworks is central. Well-designed regulatory arrangements will, over time, capture these improvements in efficiency and pass the benefits back to customers.

The economic and the technical performance/standards frameworks need to operate together and reconcile changes in required technical performance with the cost implications. Importantly, the relationship is not linear - at some point marginal improvement in performance can only be achieved at the expense of significant additional cost. An effective interface between these regimes is important in balancing the tensions between the two.

The detailed regulatory process for network pricing was reviewed extensively to deliver the National Electricity Law and supporting national transmission and distribution rules implemented in 2008 and 2009 respectively. The revenue setting arrangements are currently the subject of further review at a national level with the discussion focusing on the effectiveness of the regulatory arrangements in balancing incentives for cost efficiency and service reliability with the delivery of efficient prices to consumers.
Figure 1 - Regulated and Market Based Business Models

**REGULATED BUSINESS**

- Regulator or Jurisdiction sets performance requirements
  
  - Regulator sets revenue allowance based on estimated cost plus profit allowance to achieve performance

**MARKET BUSINESS**

- Business sets performance parameters to meet market requirements
  
  - Business controls costs to "meet the market"

**Customer Experience**

- Prices determined on basis of revenue allowance
- Quality & effectiveness delivered by regulatory functions

**REGULATED BUSINESS**

- Revenue
  
  - Efficiency determines actual costs
  
  - Profit revenue less costs

**MARKET BUSINESS**

- Revenue
  
  - Efficiency determines costs
  
  - Profit revenue less costs

**Taxpayer Experience**

- Dividends + Business Value
  
  - Business Returns Shareholder Value

*In the case of the Tasmanian SOEs, the Tasmanian taxpayer also receives the financial benefit of income tax payments*
2.3. Market-based Businesses

For market-based businesses, standards of technical performance tend to be more driven by market requirements and the need for the business to maintain a competitive position, or are set by the business to improve market share or take advantage of a perceived opportunity. Nonetheless, regulatory influence on technical performance remains, and the competitive sectors in the National Electricity Market (NEM) are influenced by a range of technical and price related regulatory obligations.

Prices in the competitive sectors of the electricity industry (generation and retail in the contestable market) are set on the basis of supply and demand.

In the case of generation, the competitive dispatch process provides a discipline on generators to operate efficiently to minimise their bids to ensure that they are dispatched by the market operator, AEMO. Competition provides the incentive to drive technical performance as well. A generator that may have low production costs but poor availability levels will achieve lower levels of dispatch and fewer revenue opportunities. It will also face higher risks in contracting capacity and find it difficult to compete with similar cost, but higher reliability generators, as that risk premium would need to be factored into its contract price.

Similarly, in the wholesale energy contract market, competitive tensions between generators to secure contracts with retailers to provide longer-term revenue certainty provides incentives for these to be priced on a cost-reflective basis. The interplay between an effective spot market and contract market will enable retailers and large customers to vary their spot exposure in light of excessive contract pricing.

In relation to electricity retailing in the contestable market, securing customers requires a combination of appropriate price setting and service standards. If a retailer has a higher cost to serve than a competitor, or seeks to charge a higher retail margin, it will face a greater challenge in attracting and retaining customers, and its financial performance may deteriorate as a result.

In the market-based model, there is a strong incentive for participants to minimise costs, as these savings can be retained by the business through higher profits and returned to shareholders by way of dividends, used for reinvestment, or passed through to customers to increase market share, and thereby increase future profitability. Moreover, the competitive dynamic typically means that participants cannot afford to not pursue improved efficiencies, given rivals are likely to be doing the same.

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11 For example, the National Energy Customer Framework sets out a range of obligations on retailers in relation to retail customer protection. There is a wide variety of technical performance standards required of generators in the competitive wholesale market.

12 Noting that the level of competition is not uniform across the merit order or across NEM regions, so that depending on supply and demand conditions, competitive forces vary.
2.4. The Importance of Governance

As discussed above, strong discipline from either a competitive market or a regulatory framework is a necessary but not sufficient condition for the delivery of efficiency and effectiveness by businesses. Pressures for cost-efficiency will be maximised with complementary governance arrangements between shareholders and boards/management that have a strong performance focus.

The principal-agent problem is common to most businesses and arises where business owners are not in direct control of the business, and is well documented in the literature. If shareholders are not particularly focused on financial performance, the incentives within the regulatory framework will provide a relatively weak discipline for efficiency and effectiveness. This is particularly the case for the network businesses, where around two-thirds of allowed costs (and therefore revenues) are derived from the regulated return on assets. Without a strong focus on financial performance, this provides ‘headroom’ for inefficiencies in operating expenditure, as overspending operating expenditure allowances are somewhat masked by the return on assets in terms of ‘bottom line’ performance.

Appropriately incentivising performance is a central issue for governance for all businesses, and particularly publicly-owned entities that lack the visibility of a share price and the threat of takeover in the financial market.

This issue is addressed in the Panel’s Draft Report.

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When ownership and control are separated, there is a need to align the interests of the managers and the shareholders. In the absence of such alignment, the self-interest of managers may lead them to act other than in the interest of the shareholders. This can manifest in many different ways, including financial underperformance, diversification and a loss of focus on core business. The principal-agent theory is about designing monitoring and/or incentive systems that will make managers act in the best interest of the shareholders.
3. Methodology

The Panel has identified the following six parameters in undertaking this investigation:

1. Identification of the pertinent operational and reliability performance measures and the comparison of same over time and with other Australian utilities.

2. An assessment of the process of identifying the need for infrastructure additions or system enhancements (i.e. the technical need), the corporate approval process, the method of acquisition, and capital project management, including the comparison of actual cost to approved budget.

3. The examination of the SOEBs’ asset management philosophy and/or maintenance practices, including the acquisition of services.

4. An examination of the major cost drivers for each core function, including cost performance measures, historical cost trends and the comparison of these costs where possible with other Australian utilities.

5. An assessment of the cost of a range of resources (e.g. labour, materials) and operational and/or maintenance activities that are intrinsic to Tasmania.

6. The extent to which the current regulatory arrangements for each SOEB have been driving technical performance and the efficiency of operational activity or maintenance practices, and the impact on the costs incurred.

To facilitate this investigation, the Panel engaged consultants Wilson Cook to assist with the information review and comparative performance analysis.

In parallel with Wilson Cook's work, the Panel also sought advice from the SOEBs and relevant parts of Government to identify the extent to which the underlying drivers of efficiency improvement programs were instigated by the businesses instruments generated by boards, shareholders or Government more generally.

In seeking this advice the Panel has sought to determine the extent to which management has concentrated on cost control and overall productivity as a means of maximising profit and potential shareholder returns including the development of a ‘cost minimisation’ business culture. The Panel also sought to determine how the shareholders have communicated with boards on these issues, the extent to which Boards have established policies to focus management on productivity issues and the extent to which they have been regularly assessed against established targets.
The Panel has not examined the efficiency of the operations of the Tamar Valley Power Station (TVPS), which is owned by Aurora Energy, through Aurora Energy (Tamar Valley) Pty Ltd. This is for three primary reasons:

- The Panel focused on the core operations of the SOEBs, and not examined the efficiency and effectiveness of other diversified activities undertaken by the SOEBs. For example, in this review the Panel has not examined Hydro Tasmania’s retail activities through Momentum Energy, or the provision of consulting services through Entura, or in relation to Aurora Energy, the efficiency and effectiveness of its telecommunications business;

- The TVPS business has been operating for a relatively short period of time and unlike the other core business activities of the SOEBs, there is no trend by which comparisons can be made; and

- The Panel has undertaken a review of the market effectiveness and function of the TVPS in examining the performance of the Tasmanian wholesale market and in relation to Government decision making and is of the view that the level of technical efficiency of the TVPS is of second-order importance relative to those issues.

Similarly, the Panel has undertaken a review of the effectiveness of the wholesale trading functions of Hydro Tasmania or Aurora Energy per se. These are recognised as key value drivers for both businesses and the outcomes of the trading functions are reflected in the financial performance of the businesses, which is examined in the Panel’s Information Paper A Review of the Financial Position of the State Owned Electricity Businesses. The outcomes of Aurora Energy’s energy business are also discussed in the Panel’s Information Paper Tamar Valley Power Station: Development, Acquisition and Operation.
4. Presentation of Findings - Hydro Tasmania

4.1. Generating Asset Base

The hydro-generation assets owned and operated by Hydro Tasmania are unique in Australia. They were developed progressively to meet the growing needs of Tasmania’s electricity demand until the cessation of the hydro-electricity construction period in the 1990s. Hydro generation plant elsewhere in Australia has largely been developed in conjunction with irrigation or water management projects and has supplemented the generating capacity and electrical energy requirements of systems primarily supplied from thermal generating facilities. Hydro Tasmania’s plant remains the principal source of electricity generating capacity and electrical energy in Tasmania.

The technical details of Hydro Tasmania’s generating facilities have been presented in other papers prepared by the Panel but in essence they consist of a number of hydro generation schemes associated with long, medium and short term water collection and storage infrastructure.

The schemes contain some 60 generating units of varying age and technology located at 30 sites around the State. The generating plant is dependent on supporting infrastructure which includes a large number of dams, storage facilities, tunnels and canals as well as buildings, bridges and over 600km of access roads. The combined capacity of the generating plant is 2 271 MW and is capable of sustainably supplying an average of 8 700 GWh of electrical energy per annum.\(^{14}\)

Hydro Tasmania’s asset base is therefore significantly different to that of generators located in other states and other countries where a single power station can exceed the combined generating capacity and energy output of all Hydro Tasmania’s plant. For example, Bayswater Power Station in NSW has four generating units; a combined capacity of 2 640 MW and in recent years has contributed some 16 000 GWh per annum to the NEM.

Hydro Tasmania operates the various schemes and individual units of its facilities in a manner which optimises seasonal energy inflow, system demand and market opportunities.

\(^{14}\) The capability of the system is constrained by the amount of water held in storage and that which flows into the system on a year-by-year basis.
4.2. Performance

The principal measures of generating plant performance are **availability** and **forced outage rate**. Plant availability is a measure of the time a plant is fully available for service expressed as a percentage and may be reduced by both planned and unplanned (or forced) outages.

In systems which are constrained by limited capacity, availability is of prime importance. In systems that are not as constrained by limited capacity, forced outage rate tends to become more important as a measure of non-availability during a period when the plant was required to be in service. Achieving the balance between planned maintenance outages and forced outages is one of the key challenges of generating plant asset management.

**Table 1 - Hydro Tasmania Plant Performance**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
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<tbody>
<tr>
<td>Equivalent Availability Factor</td>
<td>87.87</td>
<td>90.35</td>
<td>89.25</td>
<td>90.16</td>
<td>89.30</td>
<td>88.09</td>
</tr>
<tr>
<td>Equivalent Forced Outage Factor</td>
<td>1.14</td>
<td>0.82</td>
<td>2.62</td>
<td>1.22</td>
<td>1.65</td>
<td>0.51</td>
</tr>
<tr>
<td>Planned outage factor</td>
<td>10.99</td>
<td>8.82</td>
<td>8.13</td>
<td>8.62</td>
<td>9.05</td>
<td>11.40</td>
</tr>
</tbody>
</table>

Equivalent Availability Factor + Equivalent Forced Outage Factor + Planned Outage Factor = 100%

Figure 2 illustrates that the combined availability of Hydro Tasmania’s hydro-generating plant from 2004 to 2011 has remained constantly around 90 per cent during the period.

**Figure 2 - Availability Factor**

Source: Hydro Tasmania
Figures 3 and 4, below, show the planned outage and forced outage rates of the same plant over the same period.

**Figure 3 - Planned Outage**

![Graph showing planned outage rates](Image)

Source: Hydro Tasmania

**Figure 4 - Forced Outage**

![Graph showing forced outage rates](Image)

Source: Hydro Tasmania

Both the planned outages and forced outages have been reasonably constant over the period, although the forced outage rate showed an upward excursion associated with a poor result, relative to other years, in 2008.\(^\text{15}\)

Although Hydro Tasmania’s planned outage rate has remained relatively constant over recent years, the measure may not reflect the level or extent of maintenance actually carried out during the scheduled periods. The extent to which planned outage periods were utilised to maximise the opportunity to carry out maintenance was not examined in detail by the Panel, although Hydro Tasmania has provided anecdotal evidence of particular projects for which this has been a specific priority (e.g. in relation to recent works undertaken at the Poatina power station).

In general, increasing planned maintenance, and possibly the planned outage rate, tends to reduce forced outages and the forced outage rate. Reconciling the increased costs of additional planned maintenance with the benefits of reduced forced outage rate is one of the key challenges of generating plant management. The balance is influenced by the amount of generating capacity available relative to the peak load to be generated and the seasonal characteristics of the electricity demand.

\(^\text{15}\) The high level of forced outage in 2008 was largely due to a single event – the Poatina 3 isolation valve failure from 27 July 2007 to 12 March 2008.
In normal hydrological conditions, Hydro Tasmania has generating plant capacity well in excess of Tasmanian demand. Nonetheless, at certain times of the year, Hydro Tasmania may require most of its generating plant to be available in order to maximise its ability to bid capacity to capture trading opportunities or back contract positions, such as during periods of high Victorian pool price, particularly during the peak summer demand in mainland states. This is a key source of value to the business.

Figures 5 and 6 compare plant availability and forced outage rate of Hydro Tasmania with the combined performance of generation businesses in other Australian States and two New Zealand hydro electric based generation businesses, Meridian Energy and Mighty River Power. The New Zealand businesses, like Hydro Tasmania, have multiple plants and are more like Hydro Tasmania than Australian businesses with predominantly thermal plant.

These figures show that Hydro Tasmania’s plant availability is as good as or better than the thermal-dominated Australian businesses but that its New Zealand peers are achieving a slightly higher rate. Hydro Tasmania has superior forced outage factors to its Australian peers and a similar rate to Mighty River Power. Meridian exhibits superior performance, with an average forced outage rate below half a per cent over the five-year period. Meridian’s plant is, however, generally newer and bigger than Hydro Tasmania’s and its higher levels of performance could reasonably be expected.

It should be noted that conventional thermal plant utilising boilers and steam turbines of the type most common on mainland Australia have inherently lower availability and higher forced outage rates than hydro plant due to the complexities of the fuel handing and steam raising components of thermal plant.
As part of its performance reporting, the TER has also benchmarked Hydro Tasmania against hydro-electric generation businesses in North America and has found that Hydro Tasmania compares favourably in terms of plant performance with those businesses.

Wilson Cook concluded “Overall, we are satisfied that Hydro Tasmania’s hydro-electric plant has exhibited good performance to date, although a small deterioration in relation to forced outages is evident and we would be concerned if the trend continued.” The Panel shares this view, noting, however, that Wilson Cook did not have before it the most recent data for 2011 showing a reduction in forced outages.

Embedded within the performance data considered above is Hydro Tasmania’s maintenance of supply through the drought of 2007 and 2008. This period required the careful management of fuel (water and gas), plant (some of which was required to operate in sub-optimal conditions) and trading (particularly Basslink and load buybacks). It is notable that, although conditions were such that interruption to supply was a very real threat, continuity of supply was achieved, unlike during Tasmania’s 1966 drought.

4.3. Application of Capital

Within Hydro Tasmania, the responsibility for assessing potential capital investment requirements or opportunities is allocated to the Capital Investment Allocation Team (CIAT). This executive level team, and the process which it uses, have been in operation since 2007. CIAT is responsible for reviewing capital update reports, assessing business case studies, and managing the pipeline of potential projects with a value in excess of $0.5 million. The CIAT applies a three stage approval process from concept with indicative financial estimates, through to detailed business case development and Board recommendations.

In assessing Hydro Tasmania’s capital expenditure assessment and implementation processes, Wilson Cook reviewed projects of greater than $5 million which had been undertaken over the last five years. Wilson Cook noted that collectively, actual expenditure was less than the approved level, most projects were completed on time, and all projects were considered to have met the objectives that were set for them. Wilson Cook also examined a sample of business cases and post-implementation reviews and observed that the associated documentation appeared to be thorough and contain the level of detail that it would expect for projects of that type and magnitude.

Wilson Cook concluded that “overall, we were satisfied that the business follows good practice for selecting, approving and controlling capital expenditure.”
4.4. **Asset Management Philosophy**

Hydro Tasmania’s current asset management philosophy has been substantially developed since 2006 with the decision to change the focus from ‘asset maintenance’ to ‘asset management’. Asset maintenance is characterised by maintaining assets in accordance with original manufacturers’ recommendations irrespective of the duty or expected future life of the asset, or the asset’s influence on overall business performance.

Current asset management practices take each of these issues into account and balance the business risks with maintenance activity and cost.

The process involves making a detailed assessment of the condition of the majority of some 7,500 asset items. This assessment enables the development of an objective risk-based evaluation across 50 key production lines.16

Hydro Tasmania’s asset management strategy was established on the basis of this assessment and risk evaluation to set priorities to:

1. Address all safety, compliance, duty of care and legislative obligations.
2. Maintain, on a prioritised risk basis, the full productive ability of the asset portfolio.
3. a. Develop a core group of strong and reliable production lines.
   b. Manage the balance of supporting productions lines on the basis of less capital investment and more maintenance.

The philosophy led, in early 2008, to a five year capital improvement program supported by a continuous improvement maintenance program.

In response to corporate initiatives to provide financial headroom for the business and to optimise investment timing, a new Ten Year Asset Management was developed in 2010 (the 2010 Ten Year Asset Management Plan). This Plan constrains capital expenditure on Tasmanian-based generation assets in the near term (first five years of the plan) followed by increased expenditure in the medium term to compensate.

The plan acknowledges that the forced outage rate is likely to rise to about twice the present rate17 and that ongoing maintenance requirements would also rise and result in a small increase in the planned outage rate. The plan assesses that the cost of the increased maintenance requirements would be covered by ongoing productivity improvements.

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16 A production line is defined as including all assets leading to and from a particular generating unit and includes inlet water delivery systems and valves, the generating plant and control systems and dedicated electrical interconnection items.

17 Hydro Tasmania has indicated that as a result of more recent capital investment decisions, this is no longer the case.
Hydro Tasmania has indicated that the Asset Management Plan reflects a drive for greater productivity in its capital investment program in light of the capital constraints it faces. By way of example, it was able to revise the approach to recent works at Tungatinah to deliver the project outcome for a cost reduction of greater than $10 million against the original business case.

In summary, the 2010 Asset Management Plan acknowledges that the reduction in capital expenditure “reduces investments in the asset portfolio to the minimum sustainable level”. In detailed discussions with Wilson Cook, and through dialogue with the Panel, Hydro Tasmania reaffirmed its view that the deferment of capital on Tasmanian hydro-generation assets was a prudent business decision. In support of its view, Hydro Tasmania has provided the Panel with reports from independent experts commissioned both by Hydro Tasmania and by OTTER, who have undertaken assessments of the Asset Management Plan.

Wilson Cook reviewed Hydro Tasmania’s asset management philosophies and practices, including the 2010 Ten Year Asset Management Plan, and in its summation to the Panel emphasised that it considered the proposed deferral of expenditure on hydro-generation plant as involving significant risk.

Wilson Cook highlighted that there could be longer-term ramifications for asset performance and/or funding issues arising from the strategy of deferring funding for capital maintenance activities in the short term and ‘catching up’ that expenditure later.

Hydro Tasmania argues that from a risk management perspective, the asset portfolio is in a better position than at any time during the past decade. Hydro Tasmania provided the Panel with information relating to the risk rating of its asset base that suggests there has been a strong and sustained reduction in the proportion of assets that represent a high revenue or duty of care risk (falling by around 70 per cent from 2007 to 2011), while the proportion of assets that represent a medium revenue or duty of care risk have been relatively constant.
The Asset Management Plan highlights that there are material negative enterprise value implications from its implementation.° The key business decision taken by Hydro Tasmania in implementing the Asset Management Plan is that the negative impact on enterprise value will be offset by even greater returns from the redeployment of the freed-up capital in a range of activities, including diversification activities. The Plan highlights the importance of how the financial headroom created by the strategy is utilised:

The 10 year asset management plan developed will accomplish the Business Objective of creating ‘head room’ by ‘sweating the assets’. If frees up $Xm over the next 5 years against the $Ym baseline investment profile... This money, when invested wisely (emphasis added), will offset the enterprise value erosion of approximately $Zm created by the diversion of investment from the hydro portfolio. The plan has the ability to transform Hydro Tasmania and result in us being a credible and significant NEM participant; we see this as an imperative for long-term business success and sustainability. ($m omitted for confidentiality reasons).

It is significant that in making the decision to implement the 2010 Asset Management Plan, Hydro Tasmania recognised that its success was dependent on growth in future revenue streams that have accompanying risks. Those future revenue streams also have alternative uses, both within the business and from a shareholder perspective. The Asset Management Plan established a strategy that effectively draws down on future earnings from the hydro generation assets, particularly any upside in value arising from carbon pricing, in order to fund wider commercial objectives.

Hydro Tasmania contends that the decisions associated with this balance will be made progressively over the life of the AMP and may influence the flow of capital from Hydro Tasmania to the shareholder. In its first review of the Asset Management Plan, Hydro Tasmania has increased its planned level of capital expenditure included in the Plan by some $54 million over the period 2010-11 to 2014-15. Hydro Tasmania argues that this has significantly redressed the reduction in enterprise value described in the original plan.

Decisions around capital expenditure, particularly where they relate to core and diversification and growth strategies, is one of the inherent reconciliations that need to be made in providing scope to SOEBs in planning business strategy and performance. Having a very clear understanding of the purpose of the SOEBs and what government is seeking to achieve through its ownership of them is a key foundation in resolving these tensions. This is addressed further in the Panel’s Draft Report.

° The quantum of the loss in enterprise value has not been disclosed for confidentiality reason.
In this context, the Panel notes relatively recent changes in the expectations communicated by the Government to all government-owned business to place a priority on core business operations and a reduced emphasis on business diversification. These changes may have an impact on the future direction of Hydro Tasmania’s Asset Management Strategy and consequently on Hydro Tasmania’s opportunities to seek enhanced returns from the business.

4.5. Operating Expenditure

The key drivers of Hydro Tasmania’s generation business are the operation and maintenance requirements of its power stations and ancillary works, the cost of operational and commercial interfacing with the NEM and the corporate and overhead costs allocated to the business, which is in part a function of decisions regarding the allocation of overheads to activities other than generation, including diversification strategies.

Figure 7 shows actual operating expenditure for the core generation business for the period 2008 to 2010 and projected expenditure for the subsequent six years. Trading costs, depreciation charges, financing costs, costs relating to Basslink and costs relating to Momentum, Entura, Roaring 40s, Bass Strait Islands are not included. Recent expenditure has averaged approximately $120 million per annum ($real 2011) terms, with expenditure projected to reduce progressively to $107 million ($real 2011) per annum by 2016.

**Figure 7 - Hydro Tasmania Operating Expenditures**

Source: Wilson Cook

Note: Real values are calculated using ABS CPI data for Hobart for 2008-2011 and assume CPI of 3 per cent in out years
The projected reduction in real operating expenditure trend is being driven by a corporate initiative to reduce core business operating expenditure to $100 million in 2011 dollars. These expenditure savings will be targeted as part of the annual budgeting process, and Hydro Tasmania has provided confidential information to the Panel that highlights the likely areas of focus in the short-medium term.

Figure 8 shows the operating expenditure directly attributable to the operation and management of the generation assets between 2006 and 2011. These costs include labour, materials, professional services and internal charges. Figure 8 shows a reducing trend in operation costs for generation. Hydro Tasmania has advised that there have been structural and internal cost allocation changes over the period, such that the underlying trend of cost reductions illustrated in Figure 8 is indicative of performance, but a detailed comparison between years needs to be made with caution.

Wilson Cook noted that these direct costs account for only about one third of the total core business operating expenditure. Other core business costs not related to the operation and management of generating assets include non-direct labour and business overheads.

The primary drivers of the declining direct generation costs include risk reduction strategies and maintenance improvement initiatives bearing fruit; a substantial reduction in work undertaken by Entura for the generation business (in 2011, this was around one third of the level that was incurred in 2006); together with tight management of other labour costs, which fell by some 15 per cent in nominal terms over the period.
Wilson Cook also reviewed a summary provided by Hydro Tasmania of previous benchmarking work undertaken in comparison with Snowy Hydro in 2006 and 2009. The analysis shows that Hydro Tasmania compared well in terms of staff numbers per unit of capacity and per unit of output, noting that there are differences between the two in terms of installations, geographic spread of assets and operating regimes.

In terms of overall staffing levels, Hydro Tasmania has demonstrated a broad reduction in staffing levels in the primary business (i.e. excluding Entura, Momentum and subsidiaries). Staffing levels have decreased from 523 FTEs in 2007, to around 483 in 2011. Executive positions over that period remain relatively constant, indicating that the labour savings were achieved in the general workforce. Average labour costs exhibited modest growth across all categories, with executive salary costs rising by an average of 4.25 per cent per annum, and wages in the general workforce increasing by 5.7 per cent per annum in nominal terms. Following an organisational review, Hydro Tasmania implemented a new organisation structure in April 2011, which it argues reflects the nature of its business operations now and into the future, aligned with its strategic business objectives and imperatives.

Separate to the investigation of the effectiveness and efficiency, which is the primary focus of this report the Panel has conducted detailed investigations into the Hydro Tasmania business model and its internal mechanism for setting its competitive dispatch bids into the NEM and in setting contract prices. In brief, Hydro Tasmania’s approach is to price on an opportunity value basis with the key factors being the Victorian wholesale energy price and the timing of the use of its water that is in its inter-annual storages. Pricing decisions are not based on a “cost plus” approach as it relates to operating expenditure.

While Hydro Tasmania has had three major programs to drive down operating expenditure, this has not been with a view of lowering costs to enable it to bid and contract at slightly improved rates in the competitive market. Rather, the focus has been to lower costs to improve cash flow, to fund capital expenditure, both for reinvestment, and for business expansion in interstate markets and to improve returns to shareholders over the period.

4.6. Regulatory Impacts

As a NEM based generator, Hydro Tasmania is not subject to an economic/price regulatory process. It is, however, required to report annually to the TER on the performance of its generating plant, and compliance with its management plans, as a requirement of its generation licence. The report is entitled Generation Performance and Compliance Performance Report. The TER requires that the compliance performance is reviewed regularly and reported upon by an independent assessor.
The particular requirements of Hydro Tasmania’s generation licence have been set by the TER to be consistent with the Regulator’s functions and objectives set out in the Electricity Supply Industry Act 1995.

While this TER process undoubtedly focuses Hydro Tasmania’s management attention on these performance issues, the TER’s objective is to ensure that plans and performance targets are reasonable and consistent with good practice rather than set specific efficiency or effectiveness targets.

In a submission to the Panel, Hydro Tasmania expressed the view that

“OTTER is required to ensure the reliability of the electricity supply even though this requirement has been superseded by national processes. While OTTER’s approach has been pragmatic, there is a need to amend the legislation to remove this requirement from OTTER’s mandate. The process does not provide any value to the industry.”

4.7. Governance and Shareholder Oversight Issues

Hydro Tasmania is incorporated under the Hydro-Electric Corporation Act 1995 and governed by the Government Business Enterprise Act 1995 and as such is required to prepare and submit a corporate plan annually to the Treasurer and Portfolio Minister for approval.

The corporate plan is developed with the guidance of a letter from the Ministers to Hydro Tasmania’s Board which conveys their strategic priorities and broad expectations for the business, and raises specific issues to be considered in the plan. The letter traditionally provides guidance but does request information on efficiency and effectiveness targets, to enable monitoring.

The Panel has not been able to identify evidence of there being a strong and sustained focus by the responsible Ministers in the corporate planning programs on efficiency measures over the past decade, although this has changed in more recent times.

- For example, the expectation letters for 2008 and 2009 Corporate Plans do not refer to efficiency and effectiveness per se, although there are more specific expectations established in relation to financial performance, such as highlighting key targets that Hydro Tasmania is to report on - although specific targets were not established.

- In the 2010 expectation letter, explicit reference to efficiency and effectiveness is noted, and an ‘expectation in relation to financial discipline’ is stated. Again, no specific targets were set out.
In the 2011 expectation letter, more definitive language is use “...we expect the business to operate in an efficient and cost effective manner in regard to both capital and operating expenditure, subject to safety and reliability standards, to minimise overall costs and ensure that customer pricing is consistent with market dynamics”. The letter also required “details of operational efficiencies and productivity measures to enhance financial performance”.

In response, the plan stated that amongst other strategic initiatives “the Least Cost Producer Strategy had resulted in the identification of cost savings additional to those identified in the 2010 plan and reach a total of $11 million per annum by 2013”. The plan provides no further details on the Least Cost Producer Strategy. Hydro Tasmania indicates that these cost savings are incorporated in Hydro Tasmania’s financial benchmarks.

It remains unclear to the Panel how the responsible Ministers can hold the Board accountable for the delivery of a ‘Least Cost Producer Strategy’ if the primary strategy document does not establish clear targets for cost reductions that can be tracked over time.

Performance against overall financial benchmarks is important, but it does not provide a high degree of transparency about how successful efficiency measures are being implemented, and whether they are achieving the intended outcomes.

4.8. Summary of Investigation

The Panel considers the current effectiveness of Hydro Tasmania is good, with both planned outages and forced outages being reasonably constant over the period. While the Panel would be concerned if forced outage rates were to materially increase, the most recent data for 2011 shows a reduction in forced outages.

The Panel has noted that initiatives to improve efficiency and productivity continue to provide benefits to Hydro Tasmania, and to shareholders through the ability to deliver financial returns and reinvest in the business, in both core areas and in diversifications/growth areas.

The rescheduling of asset refurbishment programs to free up capital for other activities is a noteworthy matter because:

1. It requires significant increases in capital expenditure after five years to accelerate the asset renewal program and the availability of that capital depends, in part, on the success of unrelated programs to provide those funds.

2. The additional operating expenses associated with the capital deferment are assumed to be sourced from productivity improvements as there are no increases in operating expenditure in real terms provided for in Hydro Tasmania’s corporate plans.
3. The capital deferment is, by Hydro Tasmania estimation, the maximum allowable although Hydro Tasmania advises that it retains borrowing capacity to manage contingencies.

4. Individually or in combination these factors constitute a risk that funds may not be available for the future requirement for higher capital expenditure on Tasmanian hydro generation assets. There is a related risk that this will lead to a further trade-off between retaining funds in the business to address growing risks of asset under performance on the one hand, and the level of dividends being returned to the community on the other.

5. Hydro Tasmania has advised the Panel that, with the prospect of increased future revenues associated with MI customers moving off historical contracts onto market based terms and the benefits arising from a carbon price, it is confident that funds will be available as required. In the meantime, Hydro Tasmania believes that its risk monitoring and portfolio management effectively supports asset performance. The Panel observes that it will be important for Hydro Tasmania to monitor both asset performance, and its effect on financial performance as part of its asset management.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Commentary</th>
<th>Conclusion</th>
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<tr>
<td>The principal measures of <strong>generating plant performance</strong> are availability and forced outage rate.</td>
<td>Availability has remained constant at around 90 per cent. Forced outage rates have fluctuated between one and two and half per cent.</td>
<td>Hydro Tasmania performs well against its peers.</td>
</tr>
<tr>
<td>The measures of <strong>application of capital</strong> are capital expenditure assessment and implementation processes.</td>
<td>In relation to sampled projects reviewed by Wilson Cook, actual expenditure was less than approved levels; most projects completed on time and all projects considered to have met objectives. Business case and post implementation review documentation considered thorough and at sufficient level of detail.</td>
<td>Hydro Tasmania appears to follow good practice for selecting, approving and controlling capital expenditure.</td>
</tr>
<tr>
<td><strong>Asset management</strong> philosophy has evolved from ‘asset maintenance’ to ‘asset management’.</td>
<td>Asset management seeks to balance business risk with maintenance activity and cost. Asset management strategy includes risk evaluation priorities. Asset management plan constrains expenditure in the near term followed by increased expenditure in medium term to compensate. Asset management strategy driven by corporate priority on business savings to fund business diversification.</td>
<td>An asset management approach is more consistent with an efficient and effective focus by the business. Deferred maintenance expenditure may compromise plant efficiency and impact financial performance in the longer term. Hydro Tasmania considers the asset maintenance plan to be prudent.</td>
</tr>
<tr>
<td>Operating expenditure.</td>
<td>Hydro Tasmania has implemented three major efficiency/cost management programs over recent years. The current program is seeking to achieve limit operating expenditures to around $100 million per annum in 2011.</td>
<td>Trend to reduce operating expenditure driven by corporate initiative to improve cash flow to fund capital investment in core and non-core activities.</td>
</tr>
<tr>
<td>Governance – regulatory and shareholder.</td>
<td>Hydro Tasmania is required to report to the TER on plant performance as part of its generation licence. TER’s focus is to ensure plans and performance targets are reasonable and consistent with good practice, rather than set specific efficiency or effectiveness targets. Information provided to shareholders does not detail efficiency and effectiveness targets or strategies.</td>
<td>No evidence of strong and consistent shareholder focus on efficiency or effectiveness over the past decade, although this has changed in more recent times. It is unclear how the Shareholder drives accountability for efficiency outcomes if specific actions and targets are not detailed in the Corporate Plan.</td>
</tr>
</tbody>
</table>
5. **Presentation of Findings - Transend**

5.1. **Services provided**

The majority (approximately 90 per cent) of services provided by Transend are prescribed services, covered by a revenue cap established by the AER. The balance of services are negotiated services, covered by the AER-approved negotiating framework, or non-regulated services which are not subject to regulation. The following analysis refers to the prescribed transmission services provided by Transend.

5.2. **Network characteristics**

The capital development of a transmission network, the costs necessary to maintain it, and technical performance of the network are dependent on its size, the load and generation characteristics of the electricity it is required to transmit, the characteristics of the terrain through which it is required to pass, and the location of its principal switching elements.

The performance of each connection into the transmission network or from the network to the distribution system, or directly to a customer, is also influenced by whether or not alternate transmission system elements are available. Connections which have alternative supply options are considered to be **firm** while connections which have a single source of supply are termed **non firm**.

The Tasmanian transmission network operated by Transend tends to be characterised by relatively long transmission lines, through often difficult terrain, with limited meshing or alternative supply elements. While each transmission network in Australia is unique, comparisons between networks can be useful. Overall the South Australian transmission network operated by Electranet provides a more reasonable comparison to the Tasmanian system than those of other states.19

5.3. **Performance**

Transend reports annually on the following range of performance measures to satisfy the requirements of the AER, the AEMO and TER:

- Transmission line circuit availability for critical circuits.
- Transmission line circuit availability for non-critical circuits.
- Transformer circuit availability.
- Loss of supply system events (for events > 0.1 system minutes).

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19 For example, both the Tasmanian and South Australian systems have similar load profiles and connect relatively remote areas with radial feeders. Nonetheless, there are key differences, such as the South Australian transmission network has fewer generator connections, does not service predominantly hydro-based generation where generation patterns vary depending on hydrological conditions, and services a demand with a significantly lower capacity factor.
- Loss of supply system events (for events > 1.0 system minutes).
- Average outage duration - transmission lines.
- Average outage duration - transformers.
- Percentage of unserved energy.
- System minutes off supply.
- Capacitor bank availability.

These performance measures are typical of those used to measure transmission network performance in Australia and elsewhere; however, Transend, based on a request from the AER, further classifies its transmission line circuits into **critical** and **non-critical** categories. Critical circuits are those under direct AEMO oversight while non-critical circuits are those which have indirect AEMO oversight.

The first five of the measures listed above are incorporated into the Service Target Performance Incentive Scheme (STPIS) administered by the AER. Each of the measures is weighted with an emphasis on critical circuit availability and loss of supply events. The STPIS provides that Transend may receive up to one per cent additional revenue for achieving better than target performance or lose up to one per cent of revenue for falling short of target.

Figure 9 shows Transend has achieved additional revenue on the basis of above average performance over the five years to 2009. For example in 2009 the additional revenue received was about $1 million or some 16 per cent of net profit after tax. This demonstrates the potential materiality of the incentives provided under the regime and its potential to provide material incentives to achieve performance outcomes.

**Figure 9 - Transend’s ‘S’ Factor, percentage of Annual Prescribed Revenue**

![Graph showing Transend's 'S' Factor](source: Wilson Cook)

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20 This reflects that the market impact of transmission congestion (MITC) element of the service target performance incentive scheme (STPIS) is yet to apply to Transend, as there has been insufficient historic data to date from operating in the NEM.
Transend’s annual transmission circuit availability, combining both critical and non-critical categories; and annual system minutes off supply are shown in Figures 10 and 11. These figures show an upward trend in transmission circuit availability and a relatively steady trend in system minutes off supply.

**Figure 10 - Circuit Availability**

![Figure 10 - Circuit Availability](image1)

Source: Wilson Cook

**Figure 11 - System Minutes Lost**

![Figure 11 - System Minutes Lost](image2)

Source: Wilson Cook

Figure 12 shows average circuit availability and average system minutes off supply for years 2005 to 2009 compared with other Australian State averages and Transpower of New Zealand.
This comparison shows that Transend has similar circuit availability to comparable Australian transmission network service providers (TNSP) and better availability than Transpower (NZ). However, Transend has shown higher minutes off supply than Australian TNSPs, although significantly lower than Transpower. The technical performance of Electranet outperforms that of Transend.

It should be recognised that the design of the transmission network over time, together with customer load characteristics, affect the impact of plant failure and outages on loss of supply. A more strongly meshed network with fewer point load connections will be likely to have lower system minutes losses than a weakly meshed network with some very large point load customers.

This reflects that a meshed network has more redundancy to continue supply in the event of failure of a particular element, and that failure that affects a large point load or loads may quickly contribute to large system minute events. Decisions regarding increased redundancy within the network are economic ones, where the benefits of increased reliability must be traded off against the costs to achieve this increase.

Wilson Cook noted that

“In summary, these performance indicators show that Transend performs well in relation to its supply, with an improving trend. They also show that its results are in broad alignment with its peers, after taking into account the characteristic of its network.”
Transend also measures and reports on the reliability of customer connections to determine underlying drivers of reliability and availability.\textsuperscript{21} Average connection site reliability for firm and non-firm connections to distribution and direct customer connections are measured for both number of fault outages, and fault duration. Transend also sets targets for individual connection sites and measures the impact on connection site reliability for both planned maintenance and fault situations.

5.4. Application of Capital

Transend’s prescribed capital expenditure includes two main categories\textsuperscript{22}: that required for system augmentation; and that required for the replacement and/or upgrade of aging assets. Augmentation projects are required by the NER to meet a regulatory investment test which involves demonstrating a market benefit, or a requirement to meet a jurisdictional reliability requirement. Forecast expenditure needs to be approved by the AER in order to generate a revenue allowance. At the end of each regulatory period actual prescribed expenditure is rolled into the asset base.

In the current regulatory period 2009 to 2014 the augmentation category of the revenue decision amounts to $222 million (nominal dollars), and accounts for about 35 per cent of total forecast capital expenditure of $643 million (nominal dollars). Some 50 per cent of that augmentation expenditure is associated with the recently completed Waddamana to Lindisfame 220 kV transmission line.

Transend’s asset replacement programme has been ongoing over the last ten years and Transend has noted that over this period the average age of its assets has reduced, but only to the average of those of its peers.

In comparing the age of its assets with others Transend considers both transmission lines and substation facilities and breaks down both groups into component elements. Transmission line elements tend to be older to those of its peers. For example some 20 per cent of transmission line support structures are over 60 years old. Transend’s transformers and circuit breakers on the other hand are of comparable ages to those of other networks. The average age of 220 kV and 110 kV circuit breakers are 12 and 22 years respectively.

Figure 14 shows Transend’s historical capital expenditure and approved capital expenditure through regulatory determinations.

\textsuperscript{21} These measures are established for use internally and are not specified in agreements with consumers or imposed by regulators, but Transend is required to report performance to TER. The number and duration of faults on which these measures are based are accounted for in the broader overall availability performance measures discussed above.

\textsuperscript{22} Connections for load are another significant category.
Figure 14 - Transend’s Capital Expenditure, regulatory allowance and actual, $ million nominal

Annual differences between the regulatory determined capital expenditure and that incurred by Transend partly reflect timing differences in the delivery of capital projects. During the 2004-09 periods, the regulatory arrangements assessed capital spending when projects were commissioned, not when expenditures were incurred. This has changed in the current regulatory period starting in 2010.

A more accurate perspective on the effectiveness of Transend’s capital project delivery is to examine the cumulative level of capital expenditure during a regulatory period. This is shown in Figure 15.

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23 Thus, a project scheduled to be commissioned in, say, May 2006, which was actually commissioned in July 2006 would be included in the determination for 2005-06, but appear as an actual in 2006-07. There may have been no difference in the overall project costs, yet the data would suggest that Transend Networks ‘underset’ in 2005-06 and ‘overspent’ in 2006-07.
Figure 15 - Transend’s Cumulative Capital Expenditure, regulatory allowance and actual, $ million nominal

Figure 15 shows that over the regulatory period 2004-09, Transend’s capital program totalled around ten per cent more than the regulated capital spending allowance. Capital spending was below the determined levels in the early part of the period, particularly in 2005, and over the period, Transend’s actual spending of $373 million was $37 million higher than the regulated determination of $336 million.

In explaining the variance of capital expenditure relative to that allowed over the period 2005 to 2009, Transend noted that the AER, in its 2009 to 2014 revenue decision, included a detailed ex-post review of capital projects for the period. The AER noted that Transend had re-ordered its capital project priorities in the face of delays for the Waddamana-Lindisfame project, prioritising asset replacement programs, that input costs had escalated at a greater rate than that assumed and that the actual capital expenditure was prudent.

Wilson Cook examined the documentation that is regularly prepared by Transend to identify capital requirements and manage capital project execution and found them to be consistent with good industry practice.

Transend’s major capital expenditure projects over the last five years were reviewed by Wilson Cook and reported as being generally below budget and on time, with the overall capital program in excess of that forecast under the 2004-09 regulatory determination, and expenditure in the first two years of the present determination tracking under the 2009-14 allowance.
Wilson Cook also examined a sample of Transend’s post implementation reviews and noted that they contained a level of detail that would be expected for projects of the magnitude undertaken. Wilson Cook noted that Transend’s post implementation report for a particular project requiring funding in excess of the initial business case, and which was completed some three years after the original forecast completion date, made a number of recommendations for improvements. They noted improved budget and timeline performance on subsequent projects.

5.5. Asset Management Philosophy and Maintenance practices

Transend prepares a suite of plans that incorporate aspects of its asset maintenance philosophy and maintenance plans. The more important of these are:

- An Annual Planning Report for the Tasmanian network. This plan includes a 20 year demand forecast, a technical review of system security and a rolling five year investment plan.

- A biannually updated Transmission System Management Plan. The plan describes life cycle management of the various asset classes with maintenance and replacement based on asset condition and risk assessment. The current plan notes the continued existence of aged assets in service despite recent replacement programmes. Asset management systems are said to be modelled on The International Infrastructure Management Manual.

The above plans are supported by an asset management information system, an environmental management system, a risk management system, a plant restriction and plant outage management system, an operational information system, a land information system and a document and standards system. Wilson Cook noted that “these are conventional systems for businesses of this type” and also noted that the AER considered Transend’s network planning framework and processes consistent with good industry practice.

5.6. Operating Expenditure

Transend’s operating expenditure has increased significantly since it was established in 2008. Figure 16 shows regulatory determined operating expenditure allowances and compares them with actual operating expenditure over the period 2004-10.
Significant increases in operating expenditure, particularly during the period 2005 to 2009, are apparent and substantially exceed the allowance set by the ACCC in its regulatory reset for the 2004 to 2009 period. In making its determination, the ACCC allowance provided for containment of operating cost growth and imposed a cumulative two percent per annum efficiency requirement. By contrast, Transend’s performance demonstrated two step changes in operating costs – a 26 percent nominal increase between 2005 and 2006, and an increase of a similar proportion in 2008. Over the 2004 to 2009 period, Transend’s expenditure exceeded the regulatory allowance by around $28 million in nominal terms, which equates to around 16 percent of the regulatory determined total operating expenditure over the period.

The Transend Board made a considered decision to spend above the regulatory allowances, based on its view that the ACCC determination had made unsustainably low expenditure allowances. Transend advised its Shareholding Ministers of this strategy through successive Corporate Plans, noting that “Transend considers that the long-term interest of Transend’s customers and Shareholders is unlikely to be best served by trying to beat the ACCC’s operating allowance. It is not considered prudent to make arbitrary cuts to the operational budget and set unrealistically low expectations for the future”.

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24 Transend Strategic Plan 2007. Similar statements were contained in other Corporate Plans over the regulatory period.
In correspondence on the Corporate Plan, Shareholders noted that the Board had made that judgement and requested that written justifications be provided supporting the need for expenditures to be maintained at levels higher than the regulated allowances.

Subsequent Corporate Plans did not provide detailed information on efficiency targets, measures or outcomes in relation to maintaining costs, rather there were references to ‘organisational efficiency and effectiveness’ objectives, which included “a focus on reducing internal operating expenditure” and an “increased focus on annual expenditure targets”.

The Panel’s review of the Corporate Planning documents indicate that Transend was focused on meeting the budgeted expenditures it put forward through the regulatory process, and that the ACCC determination on allowances and productivity improvements appeared to have minimal impact on performance targets.25

In its investigation, Wilson Cook reviewed Transend’s regulatory proposal to the AER for the 2010 to 2014 regulatory period and also a report by Worley Parsons who were appointed by the AER to review Transend’s regulatory proposal in detail. Wilson Cook noted that from 2005 to 2009

“expenditure had risen in real terms in all cost categories, with significant increases in transmission services, transmission operation, asset management, corporate costs and network support. The lowest increase in percentage terms was in field operations and maintenance. Preparation for, and entry into, the NEM were said to have contributed to cost increases in a number of categories. Planning and implementation of a wider-ranging and more complex works programme than in the preceding years was also said to have required an increase in works management capability and in asset management capability.”

The increases in operating expenditure for the 2004 to 2009 period are graphically presented in Figure 17.

25 In this context, it appears that the performance hurdle established through the regulatory framework was considered so high that it was effectively set aside by the business. For example, there is no evidence that Transend sought to achieve a performance pathway towards the benchmarks established by the ACCC.
Of particular interest is the fact that field operations and maintenance had the lowest increase in percentage terms. Transend has advised that since its establishment it has outsourced all field operation and maintenance activities with capable service providers the majority of whom are party to performance based contracts with some having financial incentives. Transend has benchmarked some of these contracts to ensure that pricing and levels of service are consistent with industry best practice.

Figure 16 illustrates that the AER made an opex allowance significantly higher than that approved by the ACCC. Wilson Cook also noted that Transend’s operating expenditure in the present period was expected to increase annually in real terms but at a slower rate, and that Worley Parsons, working on behalf of the AER, considered the expenditure reasonable and the supporting documentation the best they had seen in contemporary Australian entities.

Using data from the AER’s annual electricity transmission business performance reports Wilson Cook compared Transend’s operating costs with those of other Australian TNSPs. Figures 18, 19 and 20 show Transend’s performance compared to their contemporaries in terms of cost per kilometre of circuit length, cost per MW of peak demand and on the basis of a composite of capacity and circuit length respectively.

Transend considers that this recognises that the ACCC allowances were not sustainable and given the similarity between the AER determined operating cost allowance for 2009-10 and its actual costs in 2008-09, that it was operating efficiently during the previous regulatory period, regardless of the ACCC determined allowances.
Figure 18 - Operating expenditure per km, $ nominal per km

Source: Wilson Cook

Figure 19 - Operating expenditure per MW, $nominal per MW

Source: Wilson Cook
The data shows that for all measures, Transend’s 2009 operating costs in relative terms were higher than their NEM contemporaries. This reflects among other things underlying scale issues for Transend, relative to its peers. Regulatory determinations, such as that undertaken by the AER, reflect that a number of cost benchmarks are affected by scale economies.

What is more revealing is the rate of growth in Transend’s cost relative to its peers. A comparison of the businesses on a total operating cost basis is given in Figure 21, starting from a level of 100 in 2004 and shows Transend’s operating expenditure rising 72 per cent over the period. The average rate of growth in operating expenditure across Transend’s Australian peers was 43 per cent.

Wilson Cook acknowledged the increasing expenditure and commented that the costs were

“were accepted by the AER after detailed review” and “the results of detailed analyses take precedence over high level benchmarking of the type presented above”.

27 Other things include age of assets, terrain, the dispersed nature of generation and local labour/input costs.
Wilson Cook also considered data from the 2009 International Transmission Operation and Maintenance Study (ITOMS) report provided by Transend. The study compares performance indicators based on operation and maintenance data from transmission businesses internationally. Figure 22 presents an extract from the report.

The international benchmarked averages of cost and service are at the point where the lines intersect and regional averages are shown as triangles. The figure shows that according to the ITOMS methodology, Transend’s relative operating and maintenance performance has improved in terms of cost and performance over the last five studies, is now in the optimum quadrant, and has outperformed the ASP (Australia South Pacific) regional average in the most recent study.
Wilson Cook noted that

“the AER, in its determination did not accept the ITOMS findings as sufficient to indicate efficiency of expenditure and we concur with that view”

The Panel sought to reconcile the apparent inconsistency between the ITOMS report and the AER data, which shows that Transend’s costs were increasing at a higher rate than its Australian contemporaries. Transend has advised that the ITOMS study only considers transmission assets operating at 110 KV and above and does not include overheads including business support services and regulatory functions which, tend to be higher than other transmission entities because of Transend’s smaller size.

Although Wilson Cook accepts that Transend’s costs are reasonable, and Transend has over the last two years contained costs within its regulatory allowance, the Panel notes that Transend’s costs are increasing at a greater rate than its contemporaries and maintenance increases are not consistent with the improving age of assets. Improving asset age is only one of the drivers of maintenance costs. In Transend’s case, increases in labour charges by contractors retained to provide O&M services has increased at a rate greater than CPI accounting for the majority of increased maintenance costs. The expanded scope of maintenance activities due to an expanded asset base, as in Transend’s case, also contributes to increased costs, while in some areas costs have fallen as new equipment has been installed.

5.7. Regulatory Impacts

Apart from the STPIIs referred to earlier in this chapter the AER provides an incentive for Transend to manage its operating expenditure within its allowance by the application of an Efficiency Benefit Sharing Scheme (EBSS). The scheme acknowledges additional savings in each year of the regulatory period and effectively allows savings to be retained for a period of five years even if this extends into the next regulatory period. The arrangement has enabled Transend to retain savings of $1.7 million in 2009 and a further $3 million in 2010. Transend’s current financial projections assume that future efficiency gains will amount to $2.5 million per annum.

The AER also provides for a Capital Expenditure Incentive which rewards Transend for minimising or deferring capital expenditure.
Transend commits a part of the gains achieved from the combined incentive schemes to an Employee Regulatory Incentive Scheme, to incentivise its staff to deliver operating and capital efficiencies, whilst still maintaining service levels. Under the scheme eligible employees are able to earn a bonus of up to $3,000. This scheme is self-funding through a combination of cost savings made and STPIS incentive payments earned.

In addition to the reporting requirements of the AER, Transend is also required to report to the TER annually as a requirement of its operating licence. The report is required to include details of Transend’s technical performance and compliance with management plans in a similar manner to those required of Hydro Tasmania and detailed in Chapter 4.

The Panel is of the view that some rationalisation of the reporting, or at least alignment of the requirements, of both the AER and TER may be beneficial in providing a single performance focus for Transend and minimise the effort required to produce the reports.

The need for Transend to meet a regulatory investment test for augmentation projects has been noted earlier in this paper. The jurisdictional network reliability requirements that Transend must plan to in undertaking the regulatory investment test analysis are set out in the Electricity Supply Industry (Network Performance Requirements) Regulations 2007. These standards were developed in 2006 by a TER advisory panel. Although Transend advised at the time that the regulations were promulgated that the correction of many of the identified deficiencies had already been provided for in the approved capital development program of the day, a number of new projects were identified with an estimated cost of some $31 million to $38 million.

Transend’s annual planning report identifies those parts of the transmission system where Transend does not presently meet the network performance requirements, or is forecast not to meet the requirements based on demand forecasts. The annual planning report consultation process provides an opportunity for parties to come forward with non-network solutions to address the identified issues over the planning horizon. The regulations containing the reliability requirements are due for review in 2012.

5.8. Governance and Shareholder Oversight Issues

Transend is incorporated under the Corporations Act (2001). The Shareholders require the company to prepare and present an annual corporate plan the details of which are described in Chapter 4.

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28 Inclusive of business on-costs. However the scheme does not provide for a negative impact on employee earnings.
The Panel has noted that the Shareholder’s corporate plan expectation letters have progressively become more specific as to their expectations over time, but that corporate plans have yet to include the details, or targets, of efficiency or productivity improvement measures in response to these expectations.

For example, the 2011 Shareholder’s corporate plan expectations letter to Transend’s Board required as a specific matter to be included in the plan

“details of operational efficiencies and productivity measures that would enhance financial performance without detracting from the quality and reliability of service”.

Transend’s 2011 Corporate Plan noted that “we are focused on achieving operational efficiencies and improved productivity that does not detract from the quality and reliability of supply” and included financial targets for operating and capital expenditure and returns to shareholders associated with this focus. The plan also included service performance targets, to ensure financial savings are not delivered at the detriment of customer service. Management efforts to achieve efficiencies relative to the regulated allowance appear to be meeting with some success, given recent trends that have reversed the situation from overspending operational expenditure compared to regulatory allowances to underspending.

5.9. Summary of Investigation

Wilson Cook concluded

“Overall, we conclude that Transend is operating with an appropriate balance of prudence and efficiency and we are satisfied that there is detailed, independent scrutiny of its capital expenditure to ensure that works undertaken are efficient and effective.”

The Panel has noted Wilson Cook’s conclusion and agrees that Transend’s technical performance, or effectiveness, is satisfactory with improving trends. The Panel also notes the improving trend with respect to meeting regulatory operating expenditure allowances but remains concerned about the apparent inconsistency of rising maintenance costs with improving asset age and condition. A majority portion of this increase can be attributed to the increase in labour costs over and above CPI during the period.

The Panel also is of the view that there is an opportunity for increased involvement of Shareholders to influence Boards in the pursuit of improved efficiency through the corporate planning process and other avenues. The Panel notes that this would require a more detailed level of reporting than is currently the case.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Commentary</th>
<th>Conclusion</th>
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<tbody>
<tr>
<td>Principal measures of <strong>transmission network performance</strong> focus on availability and loss of supply.</td>
<td>Transend reports annually on a broad range of performance measures to the AER, AEMO and the TER. Transend also reports to TER the reliability of customer connections, measured by number of fault outages and fault duration.</td>
<td>Upward trend in transmission circuit availability and steady trend in system minutes off supply. Transend performs well against industry peers in relation to circuit availability but has higher system minutes off supply. The usefulness of peer comparison is limited by differences across transmission networks.</td>
</tr>
<tr>
<td>The measures of <strong>application of capital</strong> are capital expenditure assessment and implementation processes. Capital expenditure required for system augmentation is required to meet a regulatory investment test.</td>
<td>In the 2004-09 regulatory period Transend overspent its approved capital allowance. It is presently spending under the 2009-14 allowance. 10 year asset replacement program has reduced the average age of assets but only to the average of industry peers. Transmission line elements older than average of peers. Transformers and circuit breakers are of comparable age to peers.</td>
<td>Documentation identifying capital requirements and capital project execution consistent with good industry practice. Post implementation reviews at a level of detail and made recommendations for improvements that were implemented and noted in subsequent projects.</td>
</tr>
<tr>
<td><strong>Asset management</strong> philosophy and maintenance practices.</td>
<td>Key plans include annual planning report for the Tasmanian network and biannually updated transmission system management plan. Plans supported by industry consistent information, planning and risk management systems.</td>
<td>Network planning framework and processes consistent with good industry practice.</td>
</tr>
<tr>
<td>Operating expenditure.</td>
<td>Trend to increase operating expenditure. In the 2004-09 regulatory period Transend overspent its approved operating allowance. It is presently spending under the 2009-14 allowance.</td>
<td>Across a range of measures, Transend’s operating expenditure is higher than industry peers and increasing at a faster rate. The usefulness of peer comparison is limited by differences across transmission networks.</td>
</tr>
<tr>
<td>Measure</td>
<td>Commentary</td>
<td>Conclusion</td>
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</tr>
<tr>
<td>Governance – regulatory and shareholder.</td>
<td>Transend is required to report to the TER on technical performance and compliance with management plans as part of its operating licence. Information provided to shareholders does not detail efficiency and effectiveness targets or strategies. Transend has implemented an internal efficiency initiative to drive reduced or deferred capital expenditure.</td>
<td>No evidence of consistent shareholder focus on efficiency or effectiveness, although this has become a more recent focus.</td>
</tr>
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</table>
6. **Aurora Energy - Distribution**

6.1. **Network Characteristics**

The characteristics of a distribution network depend primarily on the distribution and load characteristics of its customer connections. Figures 23 and 24 provide comparative information on network connection density and load density for Aurora Energy - Distribution and other distribution networks in the NEM.

**Figure 23 - Industry Comparison - Customer Density**

![Figure 23 - Industry Comparison - Customer Density](source: Wilson Cook)

**Figure 24 - Industry Comparison - Load Density**

![Figure 24 - Industry Comparison - Load Density](source: Wilson Cook)
Aurora Energy - Distribution’s load and connection density characteristics are similar to those of the South Australian distribution business ETSA and not substantially different to the combined characteristics of New South Wales and Queensland, noting that there is substantial variation among the businesses within those states. Aurora Energy – Distribution, however, is one of the smallest distribution businesses in Australia and has some 275,000 customer connections. ETSA has nearly three times the number of customer connections of Aurora Energy – Distribution.

6.2. Performance

Aurora Energy - Distribution reports annually on a suite of reliability performance measures to satisfy the requirements of the TER and AER. The primary measures of performance are based on an assessment of the average number of interruptions to consumer supply (SAIFI) and the average duration of interruptions (SAIDI). The measures can be applied on a system basis or for particular groups or categories of consumers.

Aurora Energy - Distribution’s performance in terms of overall network reliability is shown in Figures 25 and 26 below.

**Figure 25 - Overall SAIDI**

![Overall SAIDI chart](source: Wilson Cook)
Figure 26 - Overall SAIFI

The figures show a small downward trend in underlying SAIDI (i.e. after exclusion of major event days) and a more significant declining trend in SAIFI. This indicates that, on average, Aurora Energy - Distribution customers are experiencing fewer interruptions and the average duration of interruptions has also decreased slightly in trend terms over the last ten years.

Reliability targets for Aurora Energy - Distribution are set out in the Tasmanian Electricity Code (TEC) and as such are a function of decisions made at the state level.

Prior to December 2007, reliability targets were based on three customer categories; CBD, Urban, and Rural. Average reliability targets were set for number and duration of outages in each category and Aurora Energy had a ‘reasonable endeavours’ obligation to ensure that no more than five per cent of feeders in each category fell below a lower bound of performance in each category.

From January 2008, the TEC was changed to set an overall number and duration of outage targets for five categories detailed in the table below. The change also identified within the five categories 101 communities with defined geographical boundaries and also set number and duration of outage targets on a community basis. These reliability targets are shown in Table 2.
Aurora Energy - Distribution is required to use reasonable endeavours to meet these targets by the end of the current regulatory period 2012. It is generally considered that a reduction in the number of interruptions, or reduction in SAIFI, requires a stronger and better meshed system, principally requiring the application of additional capital spending. On the other hand, to achieve a reduction in duration of interruption, or reduction in SAIDI, requires a faster repair response and may have the consequence of an increase in maintenance capability and operating expenditure. In its 2008 regulatory reset Aurora Energy - Distribution was allowed significant increases in both capital and operating allowances, which reflected, amongst other things, higher costs associated with reliability.

Since the introduction of the new categories and associated targets, Aurora Energy - Distribution has performed better in achieving the SAIFI targets than it has in achieving the SAIDI targets. It met the SAIFI targets in all five categories in the last two years but exceeded its SAIDI targets in all five categories in 2009 and in all but one in 2010.

On a community basis, in 2009 Aurora Energy - Distribution failed to meet the SAIFI target in 13 communities and the SAIDI target in 37 communities. In 2010, it failed to meet the SAIFI targets in four of the 101 communities and failed to meet the SAIDI targets in 33 communities. While there is some apparent improvement, the results show a degree of volatility and in the Panel’s view are not extensive enough to show any long term trend.29

Results on the basis of the pre 2008 categories are shown in Figures 27, 28 and 29. 19

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29 These results include the impact of major event days, as specified and reported by the Tasmanian Economic Regulator.
Figure 27 - CBD SAIDI

Figure 28 - Urban SAIDI

Figure 29 - Rural SAIDI

Sources: Wilson Cook
The trends show a marked deteriorating performance in the CBD and urban categories but generally improving performance in the rural category. This trend means that areas of high customer density have experienced declining performance in terms of outage duration while the smaller share of the population that live in rural areas have experienced improved performance.

Distribution network businesses in the NEM are also required to report supply reliability statistics to the AER. The statistics are reported in four categories, CBD, Urban, Short Rural and Long Rural. Wilson Cook calculated the average SAIDI over the period 2004 to 2010 in order to compare Aurora Energy - Distribution’s performance with other NEM distribution businesses. These comparisons are shown in Figures 30 to 33. Because the data used in these comparisons is fairly coarse, the comparisons may be considered as only indicative.

**Figure 30 - Industry Comparison - CBD SAIDI (2006-2010 Average)**

![Graph showing industry comparison for CBD SAIDI](Source: Wilson Cook)

**Figure 31 - Industry Comparison - Urban SAIDI (2006-2010 Average)**

![Graph showing industry comparison for Urban SAIDI](Source: Wilson Cook)
Figure 32 - Industry Comparison - Short Rural SAIDI (2006-2010 Average)

Source: Wilson Cook

Figure 33 - Industry Comparison - Long Rural SAIDI (2006-2010)

Source: Wilson Cook

Aurora Energy - Distribution’s falls in the mid to high range in all four categories and is outperformed by ETSA in each category.

Wilson Cook noted that

“In summary, Aurora has improved its supply reliability over the last ten years through reducing the number of interruptions but there has been little overall improvement in the average duration of interruptions. Comparison with the targets set out in the Code and with national statistics that show Aurora in the mid-to-high range of average SAIDI in all categories and suggests that there is scope for further improvement.”

The Panel is inclined to share this view and notes that improvements in rural areas may be at the expense of the deterioration in performance in urban areas.
6.3. Application of Capital

Figure 34 shows Aurora Energy - Distribution’s capital expenditure from 2004 to 2010 together with the regulatory allowance.

Aurora Energy - Distribution categorises its capital expenditure into augmentation or replacement. Wilson Cook reviewed the individual expenditure categories and advised that Aurora Energy - Distribution has increased its replacement expenditure since 2008, with expenditure increasing by around 40 per cent from $22.3 million in 2009 to $31.1 million in 2011.30

Wilson Cook noted that Aurora Energy - Distribution has undertaken several significant system augmentation projects over recent years, particularly in the Hobart area. Aurora Energy advised Wilson Cook that it has experienced significant growth in connection expenditure prior to the global financial crisis that commenced in 2007 and that it has had to accelerate a number of targeted reliability programmes. Aurora Energy has noted that it has started to see a reduction in customer generated work this calendar year.

Capital expenditure in the next regulatory period is projected to continue at a fairly constant level, averaging around $135 million per annum ($2009-10), and at a lower level than the present.

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30 This is broadly in line with the regulatory determination, which was a 34 per cent increase over this period.
Wilson Cook acted for the TER in 2006 to review Aurora Energy - Distribution’s proposed operating and capital expenditure for the period 2007 to 2012 and advised that at the time that it was of the view

“that the capital expenditure proposals put forward by the business at that time were reasonable, subject to three relatively minor adjustments.”

In relation to replacement expenditure, Wilson Cook commented

“although the level of expenditure is much higher than historical levels of expenditure under this category, we consider that the historical levels are not sustainable if the network is to continue to meet acceptable service and safety targets.”

The Panel notes that total capital expenditure in excess of the regulatory allowance for the period 2004 to 2010 was a nominal $208 million, representing an increase of around 40 per cent on the regulatory determination of an aggregate capital spend of $535 million over that period.

A breakdown of the $208 million is show in Figure 35, which demonstrates that around half of the overspend was a result of customer driven capacity augmentations.

**Figure 35 - Spending in excess of regulatory allowances 2004-2009-10, shares**

While the additional financing and depreciation charges associated with this excess capital expenditure has no immediate impact on customers through price adjustments, there is a current regulatory period impact on Aurora Energy’s financial performance through additional financing costs, which impacts on Shareholder returns. However, at the next regulatory reset, provided the regulator allows the excess capital spend to be rolled into the regulatory asset base; these financial impacts will be reversed. A regulated return will be earned on the higher regulatory asset base, increasing customer prices and potentially Shareholder returns.
Aurora Energy appointed Parsons Brinckerhoff (PB) to review its proposed capital expenditure and unit costs for the next regulatory period 2012 to 2017. PB concluded that the proposed expenditure was aligned with or below industry levels and the unit costs it reviewed were generally aligned with industry expectations.

In its current work for the Panel, Wilson Cook identified a possible risk of under-investment in replacement expenditure proposed for the forthcoming regulatory period in Aurora Energy’s submission to the AER. Under-investment in replacement expenditure may result in an aging infrastructure and may require an increase in future expenditure, with accompanying increases in pricing structure, in the event of escalating asset failure rates.

Aurora Energy observed that its distribution strategy aims to deploy smart grid technology to monitor the network and more efficiently utilise assets over their life, and that this will assist in addressing this risk.

The Panel has noted the possible risk identified by Wilson Cook and acknowledges that the situation is a further example of the reconciliation that needs to be made between the maintenance of a reliable system on the one hand, and cost to electricity users on the other. It emphasises the critical importance of the regulatory process in driving appropriate behaviour over time.\(^\text{31}\)

The Panel is also cognisant of the fact that Aurora Energy - Distribution’s asset condition monitoring approach, as the basis for asset replacement, will tend to identify areas where asset failures may become more pronounced and provides a basis for greater levels of investment to address falling performance should that be required.

6.4. Asset Management

In considering Aurora Energy - Distribution’s asset management philosophy and processes, Wilson Cook noted that it had advised the TER in a 2005 mid-term review of Aurora Energy - Distribution’s capital expenditure and had reviewed asset management planning, organisation and asset database, and work implementation documentation as part of that assignment. Wilson Cook considered that, at that time, Aurora Energy - Distribution had been slow to recognise the need for asset database and process improvements focused on better network performance.

\(^{31}\) In periods of sharp rises in electricity prices, there can be pressure brought to bear on electricity entities and Governments to find short-term ‘wins’ to decreased price pressures. These are not always in the long-term interests of electricity customers and independent regulation provides a sound mechanism to protect the longer term interests of electricity customers from potential under or over investment in the networks.
In its current investigation for the Panel, Wilson Cook reviewed Aurora Energy - Distribution’s current 2011 asset management plan describing Aurora Energy - Distribution’s present asset management strategy and the policies and processes through which it is to be implemented. Wilson cook noted a number of improvements in the policies including those for asset replacement and concluded;

“Overall, we consider that Aurora continues to have reasonable processes for planning and executing its asset management functions and for undertaking new capital works but that it also continues to exhibit some of the symptoms that we observed in 2005 – essentially, a stronger focus on ‘process’ than on action.”

6.5. Operating Expenditure

Figure 36 illustrates Aurora Energy - Distribution’s actual operating expenditure compared to the regulated operating expenditure allowance for the period 2004 to 2010.

Figure 36 - Comparison of regulatory allowance and actual opex, $ million nominal

Overspending of operating allowances is common across the 2004 to 2010 period, particularly 2005-2007. Across the whole period, Aurora Energy - Distribution overspent its operating allowances by a nominal $14 million, which represents 4 percent of total allowed expenditure. Figure 37 details the sources of over and under-spending of operating cost allowances over the period 2004 to 2010. It shows that the major sources of overspending were in relation to emergency response and repairs, NEM and contestability related costs and system operations. By comparison, overall network management related operating expenditure was at or below the regulated allowances. These account for around half of the total operating expenditures for the distribution business.
In its 2011 Corporate Plan, Aurora Energy reported that its current strategy is to ensure that the business is more strongly focused on customer outcomes and to respond appropriately to capital constraints. Aurora Energy - Distribution has commenced a number of initiatives to improve overall efficiency and productivity including a new approach to network management and a restructuring to improve works delivery efficiencies. This is illustrated in Figure 38, which shows Aurora Energy - Distribution’s actual and forecast operating expenditure over the forthcoming regulatory period. It shows that it is forecasting a steady decline in real operating costs, from a high of $80 million in 2009-10 to $65 million in 2017.
In preparing its proposal to the AER, Aurora Energy commissioned Parson Brinkerhoff (PB) to benchmark both capital and operating expenditure with industry contemporaries. In their review of the study Wilson Cook observed

“PB considered that the proposed expenditure in total was in alignment with industry averages. It benchmarked costs for the larger programmes and found that emergency maintenance and meter maintenance costs were above industry averages but within the range exhibited by other businesses. It found that vegetation costs were well below the industry average and that asset inspection costs were much lower than the industry average. Unit costs for pole replacement, conductor replacement, transformer installation and meter installation were found to be below their industry averages.”

Wilson Cook also compared Aurora Energy - Distribution’s operating expenditure with the combined values of the distribution businesses in the NEM states in terms of cost per kilometre of circuit length, cost per connection and cost per kilowatt of peak demand. It should be noted that these comparisons represent broad indicators of effectiveness only. The operating expenditure data was sourced from the latest regulatory decisions and is shown for 2009, the latest complete year for which most data was available, together with the regulatory allowances for 2013. Figures 39, 40 and 41 show these comparisons.

**Figure 39 - Operating Expenditure per km, $/km**

![Operating Expenditure per km, $/km](source: Wilson Cook)
The analysis shows that in relation to these very broad expenditure comparisons, Aurora Energy - Distribution is in the lower-to-middle part of the range for all measures. In its current revenue proposal to the AER for the 2012-13 to 2016-17 period Aurora Energy - Distribution is forecasting that its operating expenditure will be at a similar level in 2013 to that in 2009, whereas, in all other states, it is forecast to increase over that period. The extent to which Aurora Energy – Distribution can deliver the efficiency improvements underpinning the AER regulatory proposal will be critical in determining if this outcome is delivered.32

32 The Panel notes the labour saving measures announced by Aurora Energy during 2011 provide some evidence that changes within the business are being implemented that will assist in achieving these outcomes. These include the announcement of more than 50 positions in the Network Division in late 2010, and the announcement of up to 40 voluntary redundancies from the Network Division in October 2011.
In considering Aurora Energy - Distribution’s overall operating expenditure, Wilson Cook concluded:

“Whilst Aurora’s operating expenditure has risen in recent years, the business has taken steps to improve the efficiency of its operations and is proposing lower expenditure over the next regulatory period. A comparative study of expenditure indicators with other states shows that Aurora compare favourable on all operating cost indicators.

Overall, therefore, we conclude that Aurora is operating with a reasonable degree of efficiency and commend it for the initiatives it is taking to improve operating efficiency further.”

While Aurora Energy has advised the Panel that it is confident that it is able to reduce operating expenditure and operate within regulatory allowances in the future on the basis of improved technology and processes, the Panel is of the view that such a step change in financial performance will require very significant attention from all levels of management, and strong and consistent accountability for performance driven by the Board and the Shareholders. Recent reductions in staffing levels implemented by the Company in its distribution business indicate that this challenge is being actively managed.

One of the issues raised in submissions to the Panel and in the April 2011 Community Hearings was the appropriateness of the current business boundary between Transend and Aurora Energy - Distribution. The view expressed was that inefficiencies because Transend owned and operated the circuit breakers on Aurora Energy - Distribution’s distribution feeders. The matter was referred to Wilson Cook as part of its assignment.

Wilson Cook advised that they were familiar with the situation since it had parallels in New Zealand prior to industry rationalisation in that country. It noted that the problem was overcome by first allowing the distribution lines businesses in New Zealand to operate the circuit breakers with their SCADA systems, then by selling the circuit breakers to them, giving them complete control. Wilson Cook suggested that the latter course of action is appropriate in Tasmania.

The Panel has noted Wilson Cook advice on this matter and is of the view that it is a matter that should be resolved by the parties concerned.

6.6. Governance and Shareholder Oversight Issues

Like Transend, Aurora Energy is incorporated under the Electricity Companies Act of 1997 and it is subject to similar requirements for the development and presentation of an annual corporate plan to Shareholders.
The Panel has noted that Shareholders corporate plan expectation letters have progressively become more specific as to their expectations in recent years in relation to the efficiency and effectiveness of Aurora Energy’s distribution business. For example:

- the guidance letter for the 2008 plan contained no references to efficiency and effectiveness and there was a focus on the Plan explaining the impacts of the 2007 distribution pricing determination, and a requirement for clear business segment reporting.

- For the 2009 plan, direction was provided in relation to the establishment, monitoring and reporting on key financial performance indicators and business segment reporting.

- For the 2010 plan, the shareholders requested that the Plan identify “strategies to actively pursue cost reductions and efficiency gains throughout the business...” and “benchmarking expected performance in the regulated areas of the business against the Regulator’s determinations”;

- For the 2011 plan, the expectation letter noted that Aurora Energy:
  
  “needs to manage operating costs in regulated areas to within its regulated revenue allowances over the planning period. In this regard, we would appreciate details of specific operational efficiencies and productivity measures that are being implemented to enhance financial performance without detracting from the quality and reliability of services, particularly within the individual business segments that comprise the core energy and distribution businesses. In addition, we note that it is important for Aurora Energy to review its capital expenditure program, in light of the capital constraints and impact on customer prices...” The expectation letter also highlighted that the corporate plan should, amongst other things, provide “a review of forecast operating and capital costs against regulatory allowances’ for the distribution business.”

Reviewing the shareholder expectation letters in relation to Aurora Energy, it is clear that the growing diversification of the business has had an impact on framing shareholder expectations. Until recently, Shareholder expectations tended to broaden as Aurora Energy took on new business activities and to lack a more detailed focus on specific matters within the core functions. The 2011 expectation letter contained a higher degree of focus on core functions.

Reviewing the corporate plans in relation to the distribution business, Aurora Energy has been slow to respond to the increasing desires for a focus on efficiency in this strategy setting document. Prior to the 2011-12 to 2015-16 Corporate Plan, the Plans made reference to improving efficiency but did not highlight specific strategies and targets by which this objective would be met. For example, the 2010 Corporate Plan identifies ‘materially improve the efficiency of the Distribution Business’ as a key strategic direction and highlights several broad strategies, but provides no indicators or targets by which performance could be judged.
The 2011 corporate plan goes further in describing the strategies that are planned to be implemented to improve the efficiency of the distribution business and highlights projected aggregate savings that are anticipated over the planning period.

The Panel recognises that Aurora Energy’s corporate plans are already large documents (in excess of 100 pages) and contain a lot of detailed information. The Panel also recognises that specific efficiency programs will be incorporated into other strategic and operational documents within Aurora Energy, and in relation to performance monitoring arrangements for management. Nonetheless, the accountability for improvements in efficiency and effectiveness can be more effective if the key strategic document between the Shareholder and the Company address these matters in greater detail.

6.7. Summary of Investigation

- Aurora Energy - Distribution’s technical performance, or effectiveness, has shown a marginal improvement in terms of the number of interruptions but the average length of interruptions has not materially reduced in the last ten years. The Panel is of the view that while Aurora Energy - Distribution’s performance is currently better than that of some distribution utilities in Australia any deterioration would be inconsistent with the substantial resources provided to the company to deliver services under the regulatory process.

- The Panel has also noted that Aurora Energy - Distribution’s focus on performance is based on improving reliability in individual communities, many of which are underperforming the targets, but is of the view that this should not be at the expense of an overall decline in performance in areas of higher population density. It is notable that despite increases in capital spending regulatory allowances for improved reliability, and Aurora Energy overspend these allowances by some 15 percent, reliability has not demonstrated a marked improvement.

- Aurora Energy - Distribution’s historical performance has demonstrated mixed results in meeting regulatory allowances. Over the past 4 years, operating expenditure regulatory allowances increased by an average of 9.5 per cent per annum, and Aurora Energy’s actual operating expenditure grew by an average of around 11.4 per cent per annum. Achieving the projected savings targets Aurora Energy has set for itself, which are forecast to deliver year on year real savings in operating expenditure, will require a considerably different approach by the management and Board of the company. Recent changes announced within the distribution business indicate the process of change is underway.
The Panel has noted the significant real reduction in operating costs and reduced capital expenditure requirements advanced by Aurora Energy in the current regulatory proposal. The Panel notes potential risks of underinvestment in asset replacement and Aurora Energy’s strategies to manage this risk.

As with Transend, the Panel is of the view that there is an opportunity for increased involvement of Shareholders to influence Boards in the pursuit of improved efficiency and the maintenance of appropriate technical performance. In Aurora Energy’s case, it appears from its regulatory proposal and changes already announced within business, that the challenge of improving efficiency has been well embraced.
<table>
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<tr>
<th>Measure</th>
<th>Commentary</th>
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<tr>
<td><strong>Principal measures of distribution network performance</strong> are average number of interruptions to customer supply (SAIFI) and average duration of interruptions (SAIDI).</td>
<td>Excluding major event days, there is a small downward trend in underlying SAIDI and a more significant declining trend in SAIFI. Based on the 101 communities’ reliability targets, Aurora Energy met SAIFI targets in all five community categories in the last two years but exceeded its SAIDI targets in all five communities in 2009 and all but one community in 2010.</td>
<td>Achievement of performance targets is variable. Deteriorating performance in CBD and urban community categories but generally improving performance in the rural category.</td>
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<tr>
<td>The measures of <strong>application of capital</strong> are capital expenditure assessment and implementation processes. Capital expenditure required for system augmentation is required to meet a regulatory investment test.</td>
<td>Asset replacement expenditure has increased since 2008, approximately doubling between 2008 and 2010. Several significant augmentation projects have been undertaken in the recent period and there has been similar growth in customer connections.</td>
<td>Historically, Aurora Energy has consistently overspent its overall regulatory capital allowance. Forecast reduced capital expenditure is considered by Aurora Energy to be aligned with industry levels.</td>
</tr>
<tr>
<td><strong>Asset management</strong> philosophy and maintenance practices.</td>
<td>A mid-term review of asset management philosophy and processes in 2005 considered that Aurora Energy had been slow to recognise the need for asset database and process improvements focused on better network performance. A review of Aurora Energy’s current asset management plan noted a number of improvements.</td>
<td>Considered to have reasonable processes for planning and executing asset management functions and for undertaking new work. Stronger focus on process than action.</td>
</tr>
<tr>
<td>Operating expenditure.</td>
<td>Trend to increase operating expenditure and expenditure growth above the growth in regulatory allowances. Forward projections to reduce operating expenditure in real terms on a year-on-year basis.</td>
<td>Across a range of measures, Aurora Energy’s operating expenditure is in the mid range of industry peers. Step change in efficiency is required to meet forward expenditure projections. This process has commenced within the Company.</td>
</tr>
<tr>
<td>Governance – regulatory and shareholder.</td>
<td>Aurora Energy is required to report to the TER on technical performance and compliance with management plans as part of its operating licence. Corporate plan does not detail efficiency and effectiveness targets and provide an overview of strategies.</td>
<td>More recently Shareholders have demonstrated stronger interest in efficiency and effectiveness through formalised expectations. Improvements in reporting to shareholders on efficiency and effectiveness could improve accountability for change.</td>
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7. **Aurora Energy - Retail**

7.1. **Business parameters**

Until 2006, when Tasmania commenced introducing retail contestability to its electricity supply industry, Aurora Energy was the sole electricity retailer. While Aurora Energy has retained a prominent position in the market, retail licences have been issued to ERM Power Retail Pty Ltd, Country Energy TRUenergy Pty Ltd, and AGL Sales Pty Ltd. Aurora Energy estimates that it has retained a market share of around 85 per cent of the contestable customer market.

Aurora Energy retains a statutory monopoly for all non-contestable customers. From July 2011 this sector comprises all consumers with an energy demand in less than 50 MWh per annum - that is small business and residential customers.

7.2. **Performance**

The technical performance of an electricity retail business is traditionally assessed by the extent to which it meets customer service expectations. Aurora Energy reports to the TER on three customer service measures: customer calls answered within 30 seconds, percentage of customer calls abandoned, and disconnections for non payment. Figures 42 to 45 below show Aurora Energy’s recent past performance and indicates reasonably consistence performance.

**Figure 42 - Number of incoming calls**

![Number of incoming calls](Source: Aurora Energy)
The decline in performance for 2009 reflects a sharp increase in calls to the call centre in that year arising from a number of major storm events. These calls are highly concentrated in a small period of time and the call centre capacity to answer calls can be rapidly overtaken by demand. The call centre is not staffed to meet these unpredictable short-term peaks. Aurora Energy has recently introduced changes in call systems to automatically divert calls to pre-recorded information services to both reduce the number of calls taken by the call centre in the case of major events, and to assist customers efficiently obtain access to information.
The sharp decline in disconnections in 2007 is notable, and reflects changes in credit management processes implemented by Aurora Energy in that year and its work with community groups and welfare agencies to assist customers facing payment difficulties. The trend since 2007 has been year-on-year growth in disconnections, which in part, reflecting increasing electricity costs that are increasing well above the rate of inflation and wages growth in Tasmania. In 2007, Aurora Energy provided $88,119 in its hardship payment program, which assisted 930 customers. In 2010, it provided $270,000 through the same program, assisting 226 customers.

The Panel understands that in other jurisdictions, retailers are required to report on indicators relating to the timeliness and accuracy of customer billing, and that this is not the case under the current Tasmanian regulatory requirements. Given the importance of these issues to customers, this is a notable omission from the regulatory framework. However, data on complaints relating to billing is captured under the current arrangements – which will continue in the National Energy Customer Framework.

Figure 46 shows trends in customer complaints in relation to Aurora Energy’s retail business (i.e. it exclude complaints related to network faults). It demonstrates that the retail business has experienced a significant downward trend in complaints, both in terms of absolute numbers and as a proportion of its retail customer base. Across the period, complaints about billing-related matters (including billing accuracy, prices, debt recovery, disconnections) were consistently around 11 per cent of all retail complaints, but in 2010, this jumped to 28 per cent.
Wilson Cook was able to obtain only limited comparative information on the retailing sector due to it being a competitive activity and was unable to benchmark Aurora Energy’s customer service performance against its peers.

The Panel also sought advice from the Office of the Tasmanian Ombudsman which has staff dedicated to energy issues, on trends of complaints about contact with Aurora Energy’s Customer Service Centre (CSC). The Ombudsman has advised that complaints to it specifically made about contact with the CSC increased from 40 in 2010 to 54 in 2011.

The Ombudsman noted that complaints about poor CSC service also tended to be made as an aside to complaints about other more substantive issues, including pricing and credit issues, but were not generally recorded on their system.

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33 Given the focus of the study, the Panel has not investigated other sources of complaint in relation to the energy sector through the Ombudsman, e.g. complaints about electricity prices.

34 To put these figures into context, total complaints for 2009-10 (retail and supply) were around 3500, and Aurora had a total of around 270,000 retail customers in that year.
As a comparison with poor CSC service complaints the Ombudsman noted that complaints about tariff issues had also risen in the last financial year from 14 to 22 and that complaints about not being able to access pension concessions has risen from nine to 29 (although most of these related to a one off cash payment to eligible concession holders).

The Ombudsman also noted an increase in the number of complaints which were resolved by referring the complainant to a higher level within Aurora Energy. In the Ombudsman’s opinion the CSC was often unable to address customer concerns and had limited scope to escalate the issue within the Aurora Energy organisation.

7.3. Application of Capital

The predominant capital requirement for retail businesses is for IT systems. Aurora Energy recently replaced its customer information and billing system, reflecting that its existing system, Frontline, was no longer supported by its vendors and did not provide suitable capability for a competitive retail environment.

The project was originally approved by the Aurora Energy Board to proceed in February 2007 at an estimated cost of some $15 million. Aurora Energy opted to purchase an “off the shelf” system from SPL\(^{35}\), recognising that some customisation would be necessary. The complexity of the customisation process was not anticipated by Aurora Energy and resulted in unsatisfactory project progress. Following a number of internal reviews which resulted in restructuring of the project management arrangements and program modifications, the project proceeded. Project expenditure to the end of 2009 was some $33 million.

In January 2010, Aurora Energy was restructured and the retail division became part of the new Energy Business under a Chief Operations Officer. A further two formal reviews of the project were undertaken, one internal and an external review by Deloitte. Following these reviews a new project director was appointed and Deloitte engaged as a project quality assurance provider. At this time a revised budget of $63 million was established. The project was delivered for $60.3 million and went live in February 2011 with no major implementation issues.

Aurora Energy noted in comments to the Panel that major cost and time blow outs were common in recent Australian utility billing system projects and noted the relative immaturity of its IT processes, the change of vendors, limited experience of the start-up project team, and clash of priorities across the business contributed to the problems encountered with the project.

\(^{35}\) Following SPL’s appointment by Aurora it was purchased by Oracle who Aurora considered to have a different business culture and operational framework.
Wilson Cook noted that Aurora Energy was yet to complete a post implementation review of the information and billing system project but suggested “that independent peer review of the project should be included in the business case for future major information system projects”. The Panel supports this conclusion, and notes that Aurora Energy has advised that a review is currently underway under the oversight of the CFO. Given that around 45 per cent of Aurora Energy’s forecast capital spending outside the distribution business is on IT systems, this is particularly important.

The financial implications of this project have also been significant for Aurora Energy. The Company has written off around $32 million of the expenditure between 2009-10 and 2010-11, which has had a corresponding impact on profitability (and shareholder returns through dividends).

7.4. Operating Expenditure

Aurora Energy’s retail operating costs include costs associated with billing and revenue collection, marketing expenditures, costs of providing a customer interface (predominantly call centre costs, but also some IT costs) regulatory compliance costs and an appropriate allocation of corporate overheads. Collectively, these are referred to as ‘costs to serve’.

An allowance for the cost to serve that can be recovered from non-contestable customers is subject to regulation by the TER. In its most recent retail price determination, Aurora Energy applied for a cost to serve allowance of around $105 per customer per annum for 2011, falling to around $99 per customer per annum in the following two years. The TER agreed to an allowance of around $95 for 2011, falling to around $89 per customer per annum in the following two years.

In setting the allowance the TER considered:

- its own assessment of operating costs attributable to the non-contestable customer base (noting that Aurora Energy’s retail business provides services to contestable customers);
- Aurora Energy’s proposed cost to serve allowance;
- interstate benchmarks; and
- matters raised in submissions on its draft findings.

Consistent with its Statement of Approach, the Panel has not sought to review the appropriateness or otherwise of regulatory decisions, including this cost to serve decision. The Panel is not in a position to judge the extent to which the determination accurately reflects the efficient cost to serve in Aurora Energy’s context. The Panel notes, however, that in reaching it decision, the TER undertook a comprehensive and consultative approach and explained the reasons for its findings.
Figure 47 provides comparative cost to serve provisions in other states.

**Figure 47 - Cost to Serve Regulatory Allowances**

![Bar chart showing cost to serve regulatory allowances in different states](image)

Source: Wilson Cook

Aurora Energy provided a breakdown by cost centre for its retail and energy businesses for the period 2007 to 2011 as part of the information provided to Wilson Cook. Aurora Energy noted that its retail cost allocation model has changed over time and that care needed to be taken in reaching any conclusion on the data that it provided. On that basis, the Panel has not included this data in this report.

In other regions of the NEM where full retail contestability has been introduced, in setting fall-back contract arrangements, some regulators explicitly include an additional allowance in retail costs to cover customer acquisition costs, when determining the efficient cost to serve for an incumbent retailer. In the absence of full retail contestability in Tasmania, there is no such allowance factored into the TER’s calculation of Aurora Energy’s cost to serve.

From time to time, there is debate in the media regarding the consequences of Aurora Energy’s marketing expenditures on retail customer bills. The marketing expenditure that the TER has allowed Aurora Energy retail business to recover from its customers includes only those marketing costs that the Regulator considered relevant to non-contestable customers, who are not able to choose their retailer. For example, costs associated with brand recognition or sponsorship were removed from the cost base and costs associated with customers becoming contestable were also excluded.
Depending on the effectiveness of competition in the contestable retail market, Aurora Energy may be able to recoup its marketing costs (eg. Aurora Energy’s sponsorship of Aurora Stadium in Launceston and the costs associated with the media promotion of energy efficiency issues) from contestable customers through the retail margin. From discussions with market participants, it appears that there is effective competition on retail margins between Aurora Energy and ERM for those customers that are targeted by both companies, and, therefore, a limited opportunity for Aurora Energy to recoup higher costs from the contestable customers.

In its current corporate plan Aurora Energy forecasts a cost to serve for non-contestable customers materially higher than the regulatory allowance, indicating that it is having difficulty in meeting the cost performance expectations of the TER. Higher than ‘allowed’ retail costs are effectively funded by the Shareholders of Aurora Energy through a reduction in profits and are not experienced as higher prices to non-contestable customers.

A central issue in considering the efficiency of Aurora Energy’s retail business is the consideration of scale economies. Energy retail businesses enjoy economies of scale as a large proportion of the costs of retailing do not vary materially with changes in customer numbers (eg. core IT platforms such billing system, trading functions, some marketing costs), so that incremental additions to the customer base deliver relatively large marginal revenues. Conversely, relatively small customer numbers can produce relatively high costs to serve per customer. There are around 270,000 residential and business customers in Tasmania, and in light of retail competition in Tasmania, Aurora Energy has diversified its retail activities to other NEM jurisdictions to assist defraying its fixed retail costs over a wider customer base. Nonetheless, with a total of 140 retail customers across 1167 sites outside of Tasmania, Aurora Energy is a small retailer in the national context.

36 The effectiveness of such marketing initiatives for Aurora Energy’s position in the contestable market is a key determinant for management and the Board in considering these expenditures, and is not a matter that the Panel has investigated. It is noted that throughout the Review period, Aurora Energy’s retail business has progressively been exposed to retail competition and has needed to position itself.

37 The quantum of the difference has not been disclosed for confidentiality reasons. The difference between Aurora’s proposed cost to serve and the regulatory determination for 2010-11 was around 10 per cent. The Corporate Plan projects a difference larger than this.

38 The Panel notes that the energy business is implementing a major cost reduction program that has expectations of delivering greater savings than those incorporated into the Corporate Plan. The successful implementation of that plan and the achievement of the anticipated savings would, on Aurora Energy’s estimation, result in the business achieving the regulated cost to serve allowance.

39 There are recognised ‘tiers’ in energy retailing. Once customer numbers reach certain thresholds, there can be step changes in some of the largest costs associated with retailing, particularly billing systems. Accordingly, there are returns to scale across bands of customer numbers. The generally accepted ‘minimum scale’ for electricity retailers has increased significantly over the past decade. Data from the Energy Retailers Association of Australia shows that in the markets of Victoria, NSW, Queensland and South Australia Origin Energy has around 3.3m customers, TRU energy around 2m customers, AGL has around 1.9m customers and all other retailers combined have around 1.5m customers – see: 

The Panel notes that planned changes to Aurora Energy’s energy business were announced in August 2011 that propose around 40 positions to be cut, some of which will relate to the retail business. Aurora Energy has established targets for material reductions in operating costs over the Corporate Planning period and for a target return on investment from the energy business, which it argues is on-track to being achieved.

### 7.5. Summary of Investigation

- The evidence gathered by the Panel indicates that Aurora Energy’s retail business has been relatively effective in relation to service delivery over the review period. It has implemented strategies to deal with emerging increases in credit issues, although the disconnections are showing a growing trend, and the number of complaints received in relation to the retail function has shown a downward trend.

- In relation to efficiency, Aurora Energy’s retail business has been unable to operate within the regulatory operating allowance. To the extent that the regulatory determination by the TER provides an indication of efficient costs for Aurora Energy having regard to its relative scale, this suggests that this part of the business is currently not efficient. Aurora Energy has developed a strategy to reduced costs in line with regulated cost to serve levels.

- The customer information and billing system project was complex, under-scoped and poorly managed, particularly in the period before January 2010. Because of the large differences between the eventual costs of the system and allowance permitted under the regulatory arrangements and as a result of capitalisation tests under the accounting standards, the project has resulted in large negative financial consequences for the business, with around $32 million in project costs being written off.

- In relation to the contestable market, the Corporate Plan highlights that margins have required to be reduced in order to retain market share, indicating that there remains pressure within this part of the retail business on cost performance, given the pricing of competitor offerings.

- The Panel notes that the Corporate Plan highlights strategies that aim to more closely align Aurora Energy’s cost to serve with regulatory allowances. Recently announced efficiency measures within the energy business provide an indication that some of the planned changes are being implemented, which will improve the efficiency in both the contestable and non-contestable markets. Aurora Energy also intends to continue to defray its fixed retail operating costs by retailing in other parts of the NEM.

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40 These targets have been communicated to the Panel but not published in this report to preserve commercial confidentiality.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Commentary</th>
<th>Conclusion</th>
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<td><strong>Principal measure of retail performance</strong> is the extent to which customer expectations are met.</td>
<td>Calls answered within 30 seconds remained relatively consistent at between 75 and 80 per cent. Calls abandoned, excepting 2009, trended downward, as did the number of disconnections. Complaints to the Ombudsman around tariff issues was trending upwards in the last financial year, but represent a very small proportion of complaints and an extremely small proportion of customer numbers. The Ombudsman questions the effectiveness of the Call Centre to effectively address complaints.</td>
<td>The retail business is operating relatively effectively in relation to service delivery. Performance measures relating to timeliness and accuracy of billing would be useful.</td>
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<td>Aurora reports to the TER on three measures:</td>
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<tr>
<td>1. Customer calls answered within 30 seconds.</td>
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<td>2. The percentage of customer calls abandoned.</td>
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<td>3. Disconnections for non-payment.</td>
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<td>The measures of application of capital are capital expenditure assessment and implementation processes.</td>
<td>The predominant capital application in the retail business is IT systems. Aurora Energy recently replaced its customer information and billing system at a final cost four times higher than the original estimate.</td>
<td>Given the focus on IT developments over the Corporate Planning period, lessons learned from the customer information and billing system will be very important.</td>
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<td>Operating expenditure.</td>
<td>Aurora Energy’s cost to serve allowance is significantly higher than the TER allowance for non-contestable customers. Aurora Energy’s cost to serve regulatory allowance is higher than that allowed in other jurisdictions.</td>
<td>Aurora Energy continues to have difficulty in meeting its cost to serve allowance and Aurora Energy has put in place strategies aimed to address these efficiency requirements.</td>
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8. Costs intrinsic to Tasmania

One of the six elements the Panel identified as being relevant to the investigation was the assessment of the cost of a range of resources, including labour and materials, and operational or maintenance activities that are intrinsic to Tasmania. The objective was to establish whether the cost of operating a utility in Tasmania is inherently more or less than in other Australian states.

In considering this issue, Wilson Cook noted that significant cost increases over the last decade had been widespread across the industry. It had observed from reviews in New South Wales, New Zealand and Western Australia that the cost of manufacture and installation of electrical transmission and distribution equipment rose more rapidly over the period 2003 to 2007 than did consumer price indices and considered that there is no reason to assume that the Tasmanian industry was not affected similarly. Wilson Cook also noted that there had been significant increases in the cost of electrical materials and equipment over the period, driven in the main by high metal prices, and that that the high rate of price increases was stemmed by the global financial downturn in 2007 and has not so far resumed.\(^4\)

Wilson Cook also noted from earlier reviews of Aurora Energy’s expenditure that costs tended to be higher in Tasmania than in the more populous eastern states, suggesting that the cost of operating electricity transmission and distribution businesses in Tasmania is inherently greater than it is in other states. They were not able at the time to quantify the difference.

As part of the investigation each of the businesses was requested to identify areas of cost that they considered intrinsic to Tasmania.

Hydro Tasmania identified costs that it considered unique to its Tasmanian generation operations as being the size and geographical spread of its assets, the need to maintain roads, bridges, jetties and boat ramps in remote areas for public use, the maintenance of remote employee accommodation, and the requirement to operate a large vehicle fleet.

Technical factors identified by Transend that it considered lead to higher costs relative to its mainland peers included:

- Network topology – long transmission lines across difficult terrain with limited meshing of the network.
- Generation and load characteristics – geographically dispersed hydro and wind generation and large load in different parts of the island.
- A relatively high number of directly connected customers.

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4. The impact of the resources sector growth on the back of strong economic development in place like China and India is well recognised – for example, BIS Shrapnel presentations by Adrian Hart, see www.bis.com.au.
- A wide range of supply voltages from 6.6 kV to 220 kV – it is unusual for a transmission business to have so many sub-transmission assets.

- A system that is operating near its maximum capacity, requiring significant operating management.

- The complexity created by Basslink, which has a high level of capacity relative to the size of the network.

Other factors identified by Wilson Cook included the extent to which Aurora Energy’s distribution activities in particular, could be competitively priced and routinely subject to competitive price tension through the market and the more limited extent to which competitive market forces could be brought to bear in Tasmania. Wilson Cook noted that such competitive forces would be further affected by the isolation of parts of the network and the high set-up costs that would be faced by a potential outside contractor. Transend concurred with this view and cited geographical isolation, the small population, limited access to skilled labour, limited access to contractors and a greater remoteness from manufacturers as reasons for intrinsically higher costs in the State.