5 Incentive regulation and benchmarking

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| Key points |
| * Regulators commonly use incentive regulation to limit a natural monopoly’s ability to exercise market power, while maintaining strong incentives for the business to minimise costs and to innovate. * Incentive regulation is applied to network businesses in the National Electricity Market using the building block approach to determine an allowable level of revenue. Firms that spend less than forecast are allowed to keep a proportion of the savings. There are also targeted incentives to promote specific goals, such as reliability and demand management. * The building block approach generally works well and is a suitable model for the regulation of electricity networks. Recent Rule changes have largely addressed the major deficiencies of the building block approach, although the success of those changes will depend on appropriate implementation and regulatory guidelines. The best regulatory outcome will arise by: * ensuring that state–owned network service providers receive financing (both debt and equity) at ‘arms length’ rates that reflect the risk of the investment * using the ex post review of capital expenditure sparingly, and in a way that complements the existing ex ante incentive structure * using a cost of debt that is transparent, readily calculable and that is not materially influenced by short-term volatility in debt markets. (A long-term trailing average of the debt risk premium and the risk-free rate would be a pragmatic candidate.) * By enhancing the information available to regulators, benchmarking can improve the effectiveness of the regulatory process. In the past, the Australian Energy Regulator (AER) has felt constrained by the Rules in using benchmarking techniques in this way. A recent rule change should allow the regulator to use all available information to scrutinise a network business’s revenue proposal. However, in doing so they should still err on the high side of an estimate due to the asymmetric cost of errors in these calculations. * Transmission planning arrangements in Victoria rely on the institutional arrangements of a not for profit planner (the Australian Energy Market Operator (AEMO)), probabilistic planning and a cost–benefit approach, rather than financial incentives, to achieve efficient network planning decisions. However, once a planning decision is made, and the relevant funding agreed, the transmission business faces strong financial incentives to deliver that project at the lowest cost. |
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Incentive regulation can be a useful tool for encouraging network businesses to minimise costs and implement cost-reducing investments aimed at improving the operating efficiency of a network. As discussed in chapter 4, benchmarking can assist in this process by enhancing the information available to regulators. However, the value of benchmarking to the regulatory process is dependent on how well the process of incentive regulation is working. A benchmark, no matter how accurate, is of little value if the regulator is unable to use it or if it does not influence the behaviour of the regulated firm.

This chapter briefly describes how incentive regulation works (section 5.1) before examining how it is applied to Australia’s National Electricity Market (NEM) (section 5.2). Section 5.3 looks at improvements to the incentive structure, including those that have resulted from clarification of, and changes to, the Rules (AEMC 2012r) while section 5.4 discusses whether the AER is currently constrained in applying benchmarking.

## 5.1 Incentive regulation

The economic regulation of electricity networks attempts to achieve two major goals. On the one hand, it is important to stop a network business from exploiting its natural monopoly position by setting prices well in excess of efficient costs. On the other hand, retaining strong incentives for network businesses to pursue profits is important for driving efficiency in production and management decisions. Incentive regulation is designed to balance these goals by attempting to align the commercial goals of the business to the goals of society — efficient, reliable and low cost electricity supply.

Incentive regulation is a commonly used technique in the management of natural monopolies. While there are many different forms of incentive regulation,[[1]](#footnote-1) their common feature is that they specify a goal, such as maintaining network reliability, and an estimated budget. If the business can outperform the predicted budget, it can keep a proportion of the savings, with the remainder passed through as lower prices for end users. The larger the proportion of savings that network businesses are allowed to keep, the stronger (or more ‘powerful’) the incentive regime is said to be. This approach contrasts with rate of return regulation (box 5.1), which does not reward cost minimisation or innovation, but nonetheless has some advantages in certain contexts.

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| Box 5.1 Rate of return and incentive regulation |
| Pure rate of return regulation specifies the return on capital that a firm is allowed to recover, regardless of its performance. This ensures that a regulated firm is unable to exploit its monopoly position through price gouging. However, it also means that there are low incentives to provide services efficiently or develop more efficient practices through innovation.  Rate of return regulation was historically the standard practice for regulating monopolies (Vogelsang 2002) and continues to be widely used in the United States.  A common criticism of rate of return regulation is that it suffers from the Averch‑Johnson effect — in which firms subject to rate of return regulation have incentives to overinvest to increase the capital base on which they are guaranteed a return. While this criticism has had a strong influence on the move away from rate of return regulation (Vogelsang 2002), there is little empirical evidence of its impact on network investment (Joskow 2005a).  In contrast to rate of return regulation, incentive regulation allows businesses to profit by outperforming expectations. In theory, this provides a stronger incentive for the business to find productive efficiencies in its operations. However, it is more informationally demanding than rate of return regulation as the regulator must still set an expected level of performance that is neither too ‘soft’ (leading to excessive rents) or too ‘demanding’ (leading to inadequate maintenance of the network or the insolvency of the business). If the regulator cannot obtain sufficiently reliable information on a business’s costs, either through the direct examination of the network’s business plan, comparing network costs from previous years or through benchmarking, it may be possible for the business to game the regulatory process by presenting information that leads to a high revenue allowance. In that case, rate of return regulation may achieve better outcomes. |
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Incentive regulation is used to partially overcome the information asymmetries between the regulator and the regulated business. Absent these asymmetries, it would be possible to regulate the monopoly business using ‘optimal’ prices, which could be set using either marginal cost pricing or Ramsey-Boiteux pricing[[2]](#footnote-2) techniques (Vogelsang 2002). However, these conditions are rarely, if ever, met in practice.

Another important feature of incentive regulation is that it is based on high-level outcomes, such as yearly expenditure and network reliability. It is designed to leave the day-to-day decisions, such as project choice and the timing of asset replacement, to the network business.

The incentive regulation framework is not the only mechanism designed to promote efficient network investment. The regulatory test (distribution)[[3]](#footnote-3) and the Regulatory Investment Test for Transmission (RIT-T) provide some (currently relatively weak) disciplines on investment, while the broader planning framework will also influence the network business’s choice of investment. As a result, even if in a particular circumstance the incentive framework does not provide appropriate investment incentives, these other mechanisms may still facilitate good outcomes. The transmission planning framework and the RIT-T are considered in chapters 16 and 17.

### The challenge of designing and implementing incentive regulation

Designing and implementing incentive regulation must address several challenges. The first is that the twin goals of stripping away monopoly rents and encouraging cost minimisation are inherently conflicting. As Kaufmann (2006) said:

Regulators have the unenviable task of attempting to achieve inherently conflicting objectives. One important regulatory goal is promoting efficient behaviour by regulated utilities. Regulators must also ensure that customers share in the benefits of realised efficiency gains, but transferring benefits to customers reduces companies’ incentives to undertake actions that lead to efficiency gains in the first place. Regulators therefore face a trade-off in trying to create incentives for utilities to behave efficiently, while ensuring that customers share in benefits from efficiency gains. (p. 1)

In principle, one of the benefits of the combination of incentive regulation and benchmarking is to reveal the true costs of a network business, and use that cost as the basis for the revenue determination of the next regulatory period. However, using past information to set future targets reduces the incentives of a firm to lower costs since it knows that it will decrease its revenue in the future.[[4]](#footnote-4) Setting the appropriate level of incentive is therefore difficult as it involves judgments about the accuracy of any benchmarks and about businesses’ reactions to the incentive regime.

This problem reflects information asymmetries between regulators and network businesses. Regulators do not have complete information about businesses’ actual costs, expenditures, demand and service quality, but they need to make judgments about what the ‘efficient’ cost might be and how long it should take a business to close any efficiency gap. As Joskow (2006) put it:

Fully informed regulators clearly do not exist in reality. Regulators have imperfect information about the cost and service quality opportunities and the attributes of the demand for services that the regulated firm faces. Moreover, the regulated firm generally has more information about these attributes than does the regulator or third parties which have an interest in the outcome of regulatory decisions. (p. 3)

A third challenge is to maintain the relative balance of power between the regulator and the regulated firm. If the regulator has too few resources and too little discretion in its operation, it is likely that the regulated firm will use their informational advantage to push for higher prices and profits. If the regulator has too much discretion, there is a risk that it could set the price too low, either due to a lack of information or for political reasons (Yarrow 2012 and Newbery 2010). This could reduce investment below efficient levels.

Given these challenges, incentive regulation will necessarily be imperfect. Nevertheless, there are several features that such regulation should desirably have, including:

* incentives that ensure that firms can never profit by artificially increasing costs
* incentives for firms to maintain or improve service quality levels as well as to reduce costs. This ensures that improvements in cost-efficiency are not at the expense of quality of service
* where possible, neutral incentives for capital expenditure (capex) and operating expenditure (opex), as well as constant incentives over time. If this is not the case, firms have incentives to inefficiently substitute between the categories of expenditure or change the timing of projects
* limits on the rents captured by firms, although some rents may be necessary to deliver other goals[[5]](#footnote-5)
* a linkage between the strength of the incentives and the level of confidence regulators have in their forecasts of efficient spending (the more accurate the forecast the stronger the incentive can be)
* as simple a system as is practically possible, and that is well understood by all parties involved
* some certainty for businesses that their investments (which often have long lifetimes) will yield a reasonable return
* a system that improves over time. The regulatory process can be seen as a repeated game between the regulator and regulated firms. Over time, incentive regulation should use the information revealed by firms to develop better forecasts of efficient expenditure. This will reduce the scope for firms to earn excessive rents and allow the regulator to apply stronger incentives for further cost reduction.

## 5.2 Incentive regulation and the electricity sector

The National Electricity Rules (the Rules) govern the operation of the NEM. The economic regulation of network service providers is described in chapter 6 (distribution) and chapter 6A (transmission) of the Rules. The Rules are designed to meet the national electricity objective of promoting efficient investment in, and use of, electricity services for the long-term interests of consumers of electricity with respect to price, quality, reliability, safety and supply. The details of the regulatory structure differ between distribution and transmission networks (with the specific provisions spelt out in box 4.2 in chapter 4).

The AER makes revenue determinations for regulated transmission and distribution businesses every five years (though the Rules permit it to make determinations for different periods). This process involves the AER forecasting the revenue requirements needed to cover efficient costs and provide a commercial return on capital investment.

In keeping with incentive regulation (as set out above), businesses that provide network services at a lower cost than forecast can keep the resulting margin within the five year regulatory period, after which the network revenue is reset to incorporate actual expenditure levels from the previous period and updated expenditure forecasts for the upcoming period.[[6]](#footnote-6) In effect, this system allows networks to retain a proportion of any savings they can achieve (with the remainder being returned to consumers in the form of lower prices), although the amount that a firm can gain (lose) from underspending (overspending) depends on a number of factors, which are discussed in section 5.3. There are also additional incentive payments for achievement of other goals — or penalties for non-achievement — including the Service Target Performance Incentive Scheme (STPIS) payment for network reliability and the Demand Management and Embedded Generation Connection Incentive Schemes.

Network businesses recover the revenue allowances from electricity customers through a variety of ‘control mechanisms’, including price caps and revenue caps (described below).

### Calculating the maximum allowable revenue

The maximum allowable revenue that a network business can recover is based on the ‘Revenue and Pricing Principles’ of the National Electricity Law (s. 7A (1)), which state that:

A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in:

(a) providing direct control network services; and

(b) complying with a regulatory obligation or requirement or making a regulatory payment.

The costs that a network can recover are determined using the building block approach (box 5.2).[[7]](#footnote-7)

The main components of a network’s recoverable costs are:

* operating and maintenance expenditure
* capital expenditure
* asset depreciation costs
* taxation liabilities
* a commercial return on capital
* incentive payments for reliability demand management and embedded generation.

Each of the building blocks must be estimated for the five years that follow.

Determining revenue allowances is a complicated and lengthy process with formal procedures beginning up to two years before the regulatory period begins. Regulated businesses are required to submit highly detailed proposals that detail the network plans for the following regulatory period, which are then scrutinised by the AER. The process also involves input from consultants and other interested stakeholders.

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| Box 5.2 The building block approach |
| The building block approach is used to ensure that the expenditure of each network business is appropriately amortised over time. As a result, each network business, given efficient expenditure practices and decisions, is adequately compensated for the long-run costs of providing network services.  The building block model consists of two equations, which are known as the revenue equation and the asset base roll forward equation. These two equations are used to determine an allowed stream of revenues for each network business for as long as it remains regulated. Ignoring any incentive rewards or penalties, these equations together ensure that the present value of the allowed revenue stream is equal to the present value of the expenditure stream of the regulated firm.  The building block equations are as follows:  MAR = return on capital + return of capital + opex + tax + incentive payments/penalties  = (WACC \* RAB) + D + opex + tax + incentive payments/penalties  and  new RAB = previous RAB – depreciation + capex  where:   * MAR = maximum allowable revenue * WACC = post tax nominal weighted average cost of capital * RAB = regulatory asset base * D = depreciation * opex = operating and maintenance expenditure * capex = capital expenditure * tax = expected business income tax payable |
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#### Forecasting capital and operating expenditures

The building block process requires that the AER and the businesses estimate the operating and capital expenditure required to operate a network for the following five years. This requires assumptions about the efficient costs of running a network business, as well as projections of future demand and required network expansion.[[8]](#footnote-8)

The revenue determination process follows a ‘propose–respond’ approach in which a network business develops a detailed plan and proposes the capex and opex it requires, with the AER responding to the proposal. The AER must either accept the plan if it *reasonably reflects* the costs of an efficient business or, if not, propose an alternative plan.[[9]](#footnote-9)

Whether the AER has enough power to scrutinise the proposals made by network businesses, including through the use of benchmarking, is discussed in section 5.4.

#### The weighted average cost of capital

The weighted average cost of capital (WACC) is the expected rate of return required by investors to induce them to commit funds to the network business (box 5.3).

There are two sources of funding, or capital, for businesses — debt and equity. For both sources, there are costs — interest must be paid on debt, and those providing equity expect a return on their investment commensurate with the risks that equity provider faces. The WACC for any firm is determined by the return that it pays on debt and equity, weighted in accordance to their relative use and adjusted for the operation of the tax system.

As part of the building block process (revenue determination), the regulator estimates the WACC of an efficient network business at the start of the regulatory period. It is an *estimate* of the financing costs of a typical network business with an efficient capital structure and is used to determine the revenue allowance that network businesses may recover. For clarity, this estimate is referred to as the regulatory WACC, while the actual capital costs that businesses face to fund their investments is referred to as the ‘actual’ WACC.

The regulator does not consider the individual circumstances of any particular firm when calculating the regulatory WACC. In theory, this creates incentives for businesses to source debt and equity financing efficiently, while considering the financial risks associated with different financing strategies. For instance, if a network operates in a low risk way, and as a result, they can access lower cost financing, they can keep the difference between the actual WACC and the regulatory WACC. However, as discussed later, it is unlikely that state-owned networks are subjected to the same level of scrutiny as privately owned networks when obtaining capital, and as a result, they are unlikely to face the same financial incentives to manage risk efficiently.

The impacts on incentives of having an incorrectly specified WACC are discussed in section 5.3.

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| Box 5.3 Calculating the WACC |
| The WACC is calculated by weighting the returns to debt and equity in the proportion that these financing sources are used:  Where *ke* is defined as the return on equity, *kd* as the return on debt, and E/V and D/V are the weights in which debt and equity financing are used.[[10]](#footnote-10) T is the corporate tax rate and γ (gamma), also known as the dividend imputation rate, is the proportion of imputation credits that can be used by shareholders.  The return on equity is calculated as:  Where *rf* is defined as the risk-free rate, *βe* is the firm specific equity beta and *MRP* is the premium per unit of market risk (calculated using the capital asset pricing model).  The return on debt is calculated as:  Where *rf* is the risk-free rate and *DRP* is the premium per unit of market risk. |
| *Source*: The Rules, version 54, clause 6.5.2. |
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#### Incentive schemes

The AER currently applies an efficiency benefit sharing scheme (EBSS) for opex and a service target performance incentive scheme (STPIS) to transmission businesses. In the case of distribution businesses, the AER applies a STPIS, an EBSS for opex and a Demand Management and Embedded Generation Connection Incentive Scheme.

The EBSS determines the way in which benefits of efficiency gains are shared between network businesses and network users, and attempts to provide incentives for efficiency that do not diminish over time. Currently, the AER has only developed an EBSS for opex, although it has had the option of applying an EBSS to capex for distribution businesses (but not transmission businesses) for some time. However, recent Rule changes have given the AER the power to apply an EBSS to capex for all network types (version 54 of the Rules), as well as expanded the range of EBSS design options that the AER can choose to implement.[[11]](#footnote-11) This is discussed in section 5.3.

The STPIS provides financial incentives for networks to achieve high levels of service performance (chapter 15). The Demand Management and Embedded Generation Connection Incentive Scheme provides incentives for distribution businesses to utilise non-network alternatives, including embedded generation, where these are efficient. In part, this scheme is designed to counteract the incentives that exist under a price cap for networks to encourage higher demand (though these incentives are imperfect — chapter 12).

An ‘F‑Factor’ scheme applies to distribution businesses in Victoria. This scheme provides financial incentives for a network to pursue fire safety goals. This is discussed in section 5.3.

#### Managing forecasting uncertainty

Expenditure forecasts are inherently uncertain as they include a wide range of assumptions about the cost drivers of network businesses. To create strong incentives for cost minimisation, businesses should, ideally, bear the consequences of poor management of the costs they control. However, for costs that are not under the control of a business there is a case for electricity users, rather than network businesses, to bear the risk of increases.[[12]](#footnote-12)

For costs outside the control of the business, the regulator can allow the business to use a cost pass through, in which some categories of costs are included in the revenue allowance without needing to be in the building block forecasts. Chapter 10 of the Rules defines pass through events to include:

* a regulatory change event
* a service standard event
* a tax change event
* a terrorism event.

In addition, transmission businesses may consider a prescribed insurance event[[13]](#footnote-13) as a pass through, while distribution businesses may nominate additional events during the revenue determination process.

A further mechanism for reducing uncertainty in revenue forecasts is the treatment of so-called contingent projects in revenue determinations. If it is unclear whether a project will be needed during the forthcoming period due to difficulty in forecasting demand and generator entry, a project may be entered into the revenue determination as a contingent project.[[14]](#footnote-14) This means that the business can only recover the costs of the project if a trigger event occurs, in which case, the AER initiates what is effectively a ‘mini’ revenue determination. Currently, contingency provisions only apply to transmission projects. However, following a review by the Australian Energy Market Commission (AEMC) (2012r), the Rules now include a contingent projects framework for distribution businesses (Version 54 of the Rules, pp. 663ff).

The Productivity Commission has recommended that large investment transmission projects be subject to the same kind of arrangements as contingent projects (chapters 16 and 17).

### Applying the revenue allowance

The maximum allowable revenue calculated using the building block methodology is converted into network prices using demand forecasts. This methodology, known as a control mechanism, varies between networks such that:

* a revenue cap applies to all transmission businesses and to distribution businesses in Queensland and Tasmania
* a weighted average price cap applies to distribution businesses in New South Wales, Victoria and South Australia
* a maximum average revenue cap applies to the distribution businesses in the ACT.

A revenue cap control sets the maximum allowable revenue for each year of the regulatory control period. To comply with this revenue constraint, a business forecasts demand across different services for the next regulatory year and sets prices so that the expected revenue is less than or equal to the revenue cap. The business can recover more or less than the allowed amount, but knows that the maximum allowable revenue in future years will be adjusted for any difference between the expected and actual revenue of previous years (using an ‘unders’ and ‘overs’ account).

Under a weighted average price cap, prices are set so that network businesses will receive the regulated revenue target if the demand forecasts used to calculate the price caps are accurate. If demand turns out to be more (less) than expected, the network business will receive more (less) than the target.

A maximum average revenue cap puts a cap on the average revenue per unit of electricity sold (usually kWh). That average is calculated by dividing the maximum allowable revenue by the quantity of energy demanded from the most recent year available (rather than using a forecast as is the case with a weighted average price cap).

The rationale for the different methodologies between distribution businesses is largely historical, reflecting the state-based arrangements that were in place prior to the AER taking over regulatory responsibility. The relative merits of different control mechanisms, and in particular their ability to assist in efficient network pricing, are discussed in chapter 12.

### Incentives provided by building block regulation

Despite the apparent complexity of the regulatory regime, the incentives provided to network businesses are relatively straightforward. To increase its level of profit in the period following a regulatory determination, a network business must either:[[15]](#footnote-15)

* underspend the capex or opex target (or both)
* obtain capital financing at a lower cost than the regulatory WACC (discussed in section 5.3)
* improve its performance in the incentive schemes, such as the STPIS
* have actual demand volumes greater than forecast volumes (if operating under a price cap)
* improve performance in other business activities that are treated as competitive and thus not subject to regulatory determinations.

The strength of the incentives, as reflected by the proportion of any cost reduction retained by the network business, varies across each category, and across time within each category.

Also noteworthy is the fact that the regulatory regime does not make a distinction between the ways in which opex and capex reductions occur. This means that a business would be equally rewarded in the period following a regulatory determination for an equivalent cost saving from:

* finding a way to reduce construction costs
* finding an alternative cheaper project that achieves the same goal
* deferring a project into the next regulatory period.

As the incentives apply to the difference between forecast and actual expenditure, any incentive that is applied to cost reductions must also apply in equal strength to the motivation to push for increased capex and opex forecasts in the determination process. For example, if a network business can increase the revenue forecast by $1 million by challenging the AER’s decisions through the limited merits review process, they will improve their measured performance (forecast minus actual spending) by the same amount as if they had cut costs by $1 million.

This creates a dilemma when setting the power of the incentive scheme. Regulators are likely to want to provide stronger incentives for cost minimisation in the project management and maintenance activities of the network business compared with the incentives provided for project deferral, as most new projects are still likely to provide some ultimate benefits to the network.[[16]](#footnote-16) It is also undesirable to have strong incentives encouraging network businesses to attempt to increase the revenue determinations. While creating their own dilemmas, the Victorian transmission planning arrangements for network augmentations are not subject to the AER’s incentive regulations and so avoid some of these problems (box 5.4).

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| Box 5.4 Incentives present under the Victorian Transmission Planning Framework |
| In the Victorian transmission network, network augmentations are planned and authorised by AEMO, and the funding for these projects is only allocated once a project has been confirmed. This process is discussed in further detail in chapter 16 and appendix F.  Some participants have criticised this arrangement as contrary to incentive regulation (Grid Australia, sub. 37, p. 6) since a not-for-profit entity (AEMO) determines the timing and scale of any augmentation, along with the associated revenue, using cost–benefit analysis.  However, while the Victorian system relies on AEMO in the reliability setting and planning process, once an investment is chosen, there are still strong incentives for the network business to complete the chosen investment at the lowest cost. In Victoria, separable transmission projects are put through a process of competitive tendering, in which the business that wins the tender knows that if they were to spend in excess of their tendered amount, they would not be compensated for the overspend. In contrast, under building block regulation, a firm that overspends an extra dollar on construction will only lose a portion of that cost, as the actual costs will still be entered into the regulatory asset base at the end of the regulatory period and yield a return. Non‑separable projects in Victoria are subject to similar incentive arrangements as in other states as actual capital spending is used to calculate the adjustment to the regulatory asset base. |
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## 5.3 Ensuring effective incentives

In recent years, there were mounting concerns that the building block framework, and the Rules that gave it effect, was not providing networks with incentives to deliver efficient outcomes. These concerns led to a major Rule change request by the AER and the Energy Users Rule Change Committee, which culminated in significant changes to the Rules in late 2012 (AEMC 2012r). In general, these rule changes have received wide support.[[17]](#footnote-17) Nevertheless, while the Rule changes have given the AER greater powers and regulatory options, there is still room for interpretation about how these powers can be used.[[18]](#footnote-18) The AER is developing guidelines and methodologies in several of the key areas of concern (such as the WACC and the EBSS).[[19]](#footnote-19) In effect, the recent Rule changes have not provided the detailed solutions to the problems of the previous regulatory regime, but rather have empowered the AER to address them.

This section considers how the AER may be able to use the new Rules to address the deficiencies in the previous regime. It also considers other areas where the incentive framework could be improved.

### An Efficiency Benefits Sharing Scheme for capex

The recent Rule change has allowed the AER to develop an EBSS for capex to complement the existing scheme that operates on opex. The Rule change has also expanded the options available for the AER to design this scheme. For instance, the new scheme need not be symmetric and continuous in the strength of the incentives applied (AEMC 2012r, p. 116).[[20]](#footnote-20)

Developing a well-designed EBSS for capex depends on a clear understanding of why such as scheme is necessary. In the absence of an EBSS, network businesses face weaker incentives to minimise costs as the regulatory period advances. As put by Jemena:

The shortcomings of current capex incentive arrangements are well understood. There are strong incentives for businesses to defer capex within a regulatory period and generally to spend less than the regulatory allowance. These incentives are amplified, particularly for short-lived assets, when actual depreciation rather than forecast depreciation is used in the RAB roll-forward calculation. (sub. DR77, p. 4)

The declining strength of incentives is depicted in figure 5.1.[[21]](#footnote-21) The value on the vertical axis represents the increase in the net value of the business from reducing capex spending by $1. As an example, reducing capex spending by $1 in the first year of the regulatory period yields a profit (in net present value terms) of around 25 cents for an asset with a 20 year life. As the incentive system is symmetric, this figure can also be interpreted as the cost to a business of increasing spending by $1.

Figure 5.1 Capex incentives vary across the regulatory perioda

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| Figure 5.1 Capex incentives vary across the regulatory period. This figure compares the strength of incentives between assets of a 50 year asset life, 20 year asset life and 10 year asset life, over a regulatory period of four years. |

a Commission estimates based on assumptions including both the regulatory WACC and the actual WACC are equal to 9 per cent. The value on the vertical axis represents the increase in the net value of the business from reducing capex spending by $1. As an example, reducing capex spending by $1 in the first year of the regulatory period yields a profit (in net present value terms) of around 25 cents for an asset with a 20-year life.

*Data source*: Commission estimates.

Incentives that change across the regulatory period in this way can be problematic. As well as creating incentives for network businesses to defer spending from early in the regulatory period, when the reward from reducing spending is higher, to later in the period, when the penalty for overspending is lower, they may also encourage substitution between capex and opex (box 5.5).

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| Box 5.5 An example of capex opex substitution — ageing assets |
| Ageing assets require more monitoring and maintenance than new assets. Therefore, the decision to replace an old asset involves a tradeoff between upfront capital costs of replacement and ongoing costs of maintenance. Ideally, a network will replace the asset at the time that minimises the net present value of the associated costs.  In the last year of the regulatory period, a network business has weak incentives to reduce capex, while its incentives to reduce opex are still relatively strong due to the efficiency benefit sharing scheme applying to this component of expenditure. In this situation, the tradeoff faced by network businesses is distorted, and they may inefficiently bring forward capex spending. |
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The extent to which networks actually shift capital spending over the regulatory period or substitute between capex and opex is unclear. Network projects are usually planned years in advance, and project approval requires a number of regulatory clearances, such as the regulatory test or RIT-T, that make changing the timing of projects difficult. There are also accounting standards that limit the way firms can capitalise expenditure. However, as shown in figure 5.2, the empirical evidence is that overspending (spending more than the forecast amount) tends to increase later in the regulatory period.

Figure 5.2 Overspending tends to increase later in the regulatory perioda

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a Each dotted line denotes a distribution network business. The vertical axis shows the ratio of (actual capex – forecast capex) / forecast capex. Cost pass throughs are considered as part of forecast capex. Data are from the last completed regulatory cycle. Jemena provide a similar calculation (sub. DR77, attachment 1, p. 4).

*Data sources*: Parsons Brinckerhoff (2009a, 2009b, 2010, 2012); Wilson Cook and Co. (2008).

An EBSS for capex would allow network businesses to retain a given proportion of any efficiency gains made by reducing or deferring capex.[[22]](#footnote-22) If designed correctly, it would also provide a constant incentive over time to pursue such savings and, if the incentive rates were set the same between expenditure classes, remove any incentive to substitute between capex and opex. Firms that were considering investments that improved reliability and, thereby, generated increased returns through the STPIS would also face more consistent tradeoffs under an EBSS than under the existing arrangements.

Given the empirical findings above and the theoretical concerns about distorted incentives, there are strong grounds for the AER to implement an EBSS for capex for distribution and transmission network capex as soon as possible.

However, the AER would need to resolve several technical issues before it could introduce such a scheme. Reflecting these difficulties, in 2008 the AER decided not to implement an EBSS for distribution network capex because of concerns that projects could be included in more than one forecast, and as a result, that an EBSS would provide overly strong incentives to defer projects between periods.[[23]](#footnote-23) However, a scheme that need not be symmetric or continuous should be less susceptible to such issues. Care would also need to be taken to ensure that the design and implementation of an EBSS complements (rather than undermines) the STPIS and the Demand Management and Embedded Generation Connection Incentive Scheme.

However, there is experience of capex sharing schemes that have worked, both in Australia and overseas, suggesting that implementation problems are not insurmountable (AEMC 2012a).

### Increasing the accuracy of the WACC

The building block process requires the estimation of the efficient return on capital of a typical network business. If this estimate is not accurate, it will distort the investment decisions of networks and increase customer prices (entailing transfers and, if enduring, pricing inefficiencies).

These impacts depend largely on the expected difference between the actual and regulatory WACC over time. Given the typically long lives of their assets, network businesses’ return on capital expenditure depends on the WACC determinations over many regulatory periods.[[24]](#footnote-24) Hence, a short-term expected difference between the regulatory WACC and the actual WACC is likely to have only a small impact on long-term investment decisions. However, it would result in income transfers between consumers and network businesses.

As discussed in chapter 3, while the allocative inefficiency effects of small price increases are modest in the short term, they still matter in other respects, and the transfers to producers from setting the WACC too high would potentially not be consistent with the National Electricity Objective. On the other hand, while setting the regulatory WACC too low would lower prices to end users in the short run, it might make it difficult for firms to recover their efficient costs in the long term. This would contravene the revenue and pricing principles of the National Electricity Law, and in any case would not be in the *long-term* interest of consumers.

If network businesses expect a long-run positive divergence between the regulated and actual WACC, it can create incentives for businesses to over-invest. While the business would not receive a revenue allowance for any investment above the agreed regulatory forecast during the initial regulatory period, the assets would be rolled into the RAB at the commencement of the next regulatory period. The business would receive returns for the remaining (typically long) lives of the assets. If the WACC is sufficiently high, then over-investment may be profit maximising. (The capacity for the AER to examine the prudence of investments after they have been made — as discussed later — may limit this.)

Figure 5.3 shows the strength of the incentives throughout the regulatory period if the regulatory WACC is 0.5 per cent above or 0.5 per cent below the actual WACC.

Figure 5.3 Impact of error in the regulatory WACCa

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| Figure 5.3 Impact of error in the regulatory WACC. This figure compares the strength of incentives between assets of a 50 year asset life where the regulatory WACC was too high, equal to actual WACC and too low, over a regulatory period of four years. |

a This assumes an asset life of 50 years and an actual WACC of 9 per cent compared with a regulatory WACC of 8.5 per cent in the low case and 9.5 per cent in the high case.

*Data source*: Commission estimates.

As was the case for figure 5.1, the value on the vertical axis represents the increase in the net value of the business from reducing capex spending by $1. As shown in the diagram, having a regulatory WACC that is too low will strengthen the incentive to reduce costs, while a regulatory WACC that is too high will weaken this incentive.

In the first few years of the regulatory period, the cost saving incentives in the building block regime outweigh the incentives provided by an overly generous WACC and result in net incentives to decrease expenditure. However, the incentives to reduce capital expenditure diminish throughout the period and at the end of the period, there is potentially an incentive to over-invest.

#### Is the regulatory WACC higher than the actual WACC?

It is difficult to compare the actual cost of capital with the regulatory cost of capital due to issues in measuring costs of equity.[[25]](#footnote-25) However, it is possible to compare the actual borrowing costs of firms with the forecast cost of debt used in the revenue determinations (table 5.1).

The average regulatory cost of debt is 1.25 per cent higher than the estimated borrowing costs, which equates to a WACC that is 0.75 per cent higher than the actual WACC. Care should of course be taken in interpreting such a figure, as the numbers are based on several simplifying assumptions and abstract from some of the complexities of financial markets.[[26]](#footnote-26) Moreover, a similar calculation performed by the Energy Users Rule Change Committee (EURCC 2011) has drawn a number of responses that provide, at least in part, an explanation for the apparent differences.[[27]](#footnote-27) However, even considering these factors, network businesses may have been overcompensated for the cost of debt in recent years. Further evidence to support this conclusion can be found by comparing the acquisition price of networks with the regulatory asset base (box 5.6).

Table 5.1 Comparing the regulatory cost of debt with estimates of actual borrowing costsa

|  |  |  |  |
| --- | --- | --- | --- |
| Network Business | Regulatory cost of debt | Actual cost of debt | Difference |
|  | % | % | % points |
| CitiPower | 8.81 | 8.17 | 0.64 |
| Powercor | 9.35 | 8.17 | 1.18 |
| SP AusNet (distribution) | 9.19 | 7.52 | 1.67 |
| ETSA Utilities | 8.87 | 8.10 | 0.77 |
| Aurora Energy | 8.00 | 6.50 | 1.50 |
| Ergon Energy | 8.98 | 7.48 | 1.50 |
| Energex | 8.98 | 5.94 | 3.04 |
| Essential Energy (Country Energy) | 7.77 | 7.48 | 0.29 |
| Ausgrid (EnergyAustralia) | 7.77 | 7.03 | 0.74 |
| Endeavour Energy (Integral Energy) | 7.84 | 7.55 | 0.29 |
| Powerlink | 8.10 | 6.98 | 1.12 |
| SP AusNet (transmission) | 8.20 | 5.99 | 2.21 |
| Transend | 7.79 | 6.14 | 1.65 |
| Transgrid | 7.78 | 6.63 | 1.15 |

a The actual cost of debt is taken from the annual reports of the network businesses. It is an average, reflecting the five most recent years available and is calculated as a business’s finance costs as a proportion of its interest bearing short- and long-term liabilities. The level of liabilities is estimated by averaging the liabilities at the beginning of the period and the end of the period. Of course, this is an imperfect estimate, however, it is the best estimate that can be made with the available data. Similar calculations are performed by the Gratton Institute (2012, pp. 21‑9) and the Energy Users Rule Change Committee (EURCC 2011, p. 13).

*Data source*: Commission estimates.

#### Improving the estimation of the regulatory WACC

Following a recent AEMC review (2012r, p. ii) the AER has been given responsibility to design a single WACC framework for electricity transmission, distribution and gas networks. The AEMC provided high-level guidance to the AER about how to calculate the WACC, but has left the detailed design to the AER.

In developing the new WACC framework, the AER should make the best possible estimate of the WACC at the time of the regulatory determination. In practice, this will mean overcoming the problems — as described below — that have troubled the current system.

##### The interdependence of different WACC elements

Until the Rule change in November 2012, the regulatory arrangements for determining the WACC were relatively inflexible (AEMC 2012r, p. 40).

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| Box 5.6 Using a business’s acquisition price to assess the WACC |
| If the regulatory WACC is equivalent to the actual WACC, then the commercial value of the network, which can be observed when networks are sold, should be equal to the regulatory asset base. If the regulatory WACC is greater than the actual WACC, the commercial value will exceed the RAB.  There are several exceptions to this. The sale price of a business will incorporate any anticipated efficiency and synergy gains, creating a wedge between the RAB and the sales price, even if the regulated and the actual WACC were the same. On the other hand, if the market is thin, the business may be sold at a discount. Furthermore, asset sales are based on profit forecasts, which can prove to be either optimistic or pessimistic. Nevertheless, the sale price of a regulated network business gives some guide to any major divergences between the long-run regulated and actual WACCs.  So how do asset sales compare to the regulatory asset base?  To date, networks have been privatised in Victoria and South Australia. In these cases, the assets have sold for significantly more than the regulatory asset base. Infrastructure Partnerships Australia (2011, p. 23) calculate that asset sales to the DUET group, SPARK infrastructure and SP AusNet were sold for between 1.11 and 1.32 times the RAB.  Infrastructure Australia (2012) estimate that the remaining state-owned electricity networks would be sold for between 1.1 and 1.2 times the regulatory asset base, while Deloitte (2011c, p. 5) suggests that prior to the global financial crisis regulated assets traded at a ratio as high as 1.5, but that after the financial crisis the expected ratio was ‘closer to 1.0’.  Given the variety of factors that influence sales values, it is difficult to conclude that the regulatory WACC is too high using this method. However, it does provide further evidence that networks may be overcompensated in this area. |
|  |
|  |

Furthermore, notwithstanding statements to the contrary,[[28]](#footnote-28) there appears to have been at least some doubt about the capacity for the AER to consider the inter‑relationships between various aspects of the WACC. The new Rules require that the determination of the WACC *must* have regard to such relationships (for example, NER v. 54, p. 637). This was in accordance with the Productivity Commission’s draft recommendation 5.2. In implementing the new Rules, the AER should examine the relationships between the:

* debt risk premium and the risk-free rate
* market risk premium and the risk-free rate
* market risk premium and the utilisation of corporate tax credits
* market risk premium and the equity beta.

It will be similarly critical that any merits review process relating to any specific element of the WACC take account of these interdependencies, a point considered by a recent review of the limited merits review regime (Yarrow et al. 2012b, p. 52).

##### Exposure to short-term conditions in the debt market

The building block process is forward looking, and is designed to provide an accurate estimate of the costs of a network business for the upcoming regulatory period. Where possible, these costs are based on forward looking data. However, in some cases, historical data are used to provide an estimate of the expected future market conditions. Where historical data are used, the regulator faces a tradeoff: shorter observation periods are more representative of the current financial situation, but are also more sensitive to short-term fluctuations in the financial markets than longer observation periods.

In previous revenue determinations, both components of the cost of debt — the risk-free rate and the debt risk premium — have been based on market observations. Although, the Rules specify that the risk-free rate be evaluated using a moving average, this average rate has been observed over the short term. The debt risk premium has also been assessed over the short term in order to maintain consistency across the components of the cost of debt.

Using short-term averages to determine the cost of debt exposes businesses and customers to the risk of unusual market circumstances during the averaging period, of which the global financial crisis is the most recent compelling example. Firms that had revenue determinations in the immediate aftermath of the crisis had high borrowing costs built into the WACC for the following five years. The AER estimate that setting the debt risk premium at a level closer to the actual borrowing costs of businesses would have reduced the amount consumers that paid for electricity by $400 million in 2011 (AER 2011a, p. 65).

Averages taken over a longer period — such as a five year trailing average — are more stable predictors of market conditions and are more likely to represent the actual borrowing patterns of the firms involved, as no firm would normally roll over its entire debt portfolio in a two-week period every five years.

In developing the new rate of return framework, the AER has discretion to use a wide range of methodologies, including trailing averages, to estimate the WACC. Trailing averages represent a potentially important improvement in the methodology for estimating the DRP and the risk-free rate. However, as past experience has shown, locking in a particular methodology can have unforeseen consequences. Therefore, the AER should only use this methodology where it considers that this will improve the accuracy of the estimate of the WACC.

Recommendation 5.1

The Australian Energy Regulator should consider the use of long-term trailing averages to estimate the debt risk premium and risk‑free rate used in the calculation of the weighted average cost of capital.

### Limited merits review

In 2008, a limited merits review regime was introduced into the National Electricity Law. It is designed to help ensure that decisions made by the AER are appropriate and thereby to provide confidence and security to investors in the network businesses.

Many of the limited merits reviews have focused on the WACC and have resulted in substantial increases in the revenue determinations (table 5.2). The figures should not be interpreted as necessarily indicative of inefficient increases in determinations, as the AER may well have underestimated the correct WACC in some instances. Regardless, they underline the financial importance of the limited merits review process.

Table 5.2 Limited merits review decisions regarding the WACC**a**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Business | Year | Focus of Review | Increase in revenue allowance | Increase as a percentage of allowed revenue |
|  |  |  | $ million | % |
| Integral Energy | 2009 | Risk-free rate | 338 | 9 |
| EnergyAustralia | 2009 | Risk-free rate | 945 | 11 |
| Country Energy | 2009 | Risk-free rate | 467 | 8 |
| Transend | 2009 | Risk-free rate | 80 | 8 |
| Transgrid | 2009 | Risk-free rate | 374 | 10 |
| Energex | 2010 | Gamma | 288 | 4 |
| Ergon | 2010 | Gamma | 200 | 3 |
| ETSA | 2010 | Gamma | 246 | 6 |
| SP AusNet | 2011 | Gamma & DRP | 31 | 1 |
| CitiPower | 2011 | Gamma & DRP | 31 | 3 |
| Powercor | 2011 | Gamma & DRP | 58 | 2 |
| United Energy Distribution | 2011 | Gamma & DRP | 41 | 2 |
| Jemena | 2011 | Gamma & DRP | 31 | 3 |
| Total |  |  | 3 183 | 8 |

a DRP is the debt risk premium (discussed above); Gamma is the assumed utilisation of imputed tax credits.

*Source*: CME (2012).

In 2012, the Standing Council on Energy and Resources (SCER) appointed a panel to undertake an examination of the limited merits review regime. The Limited Merits Review Panel has observed that the process has not worked as intended. Its stage one report found that:

… the regime has failed to address the realities of regulatory decisions summarised in this [Administrative Review Council] statement. Instead, a narrower, more formalistic and more formulaic approach to review has developed, which has been relatively detached from the promotion of the objectives set out in the [National Electricity Law] … and particularly from the requirement that regulatory decisions be directed toward encouraging outcomes that are in the long term interests of consumers. (Yarrow et al. 2012b)

One key concern regarding the current operation of the limited merits review process is that network businesses have a capacity to ‘cherry pick’ the aspects of a proposal where they believe the regulator is in error. In contrast, they obviously have little interest in revealing where the regulator has been too generous. In some instances, this has led to the situation in which a ruling has been made on one aspect of the AER’s determination to correct an error, while ignoring that such an error must have countervailing impacts on a related matter. (This has particularly applied to the way in which the WACC is calculated.) The National Electricity Law appears to allow the regulator the capacity to bring such broader considerations to the notice of the Australian Competition Tribunal, but in practice, the regulator has not taken this approach (an issue discussed further in chapter 21).

The changes to the Rules to require consideration of interdependences in the WACC when making revenue determinations is likely to resolve one source of cherry-picking (though the actual rulings of the merits review body on such matters has not yet been tested). The final report by the Limited Merits Review Panel suggested that broader reforms to the merits review processes were warranted and that, in particular, the review body should give primacy to the long-term interests of consumers (the National Electricity Objective) as its guiding principle in making its rulings. The Commission supports this finding. The Council of Australian Governments has set a timeline for any possible changes by the end of 2013 (COAG 2012).[[29]](#footnote-29)

### Incorporating safety in incentive regulation

Electricity networks are inherently dangerous. Managing risks, such as fires that result from network malfunction, is a key responsibility of network businesses. In the absence of regulation, networks would still have some incentive to manage these risks, as even in the presence of insurance, they bear some of these costs directly (such as a fire damaging parts of the network).[[30]](#footnote-30) However, given that the community also bears some of these risks, a network may deliver a less than optimally safe network.

Safety considerations are addressed primarily through state-based safety legislation and associated regulations, which are enforced by state-based safety regulators. These regulations are based on safety case management schemes, in which networks must identify the major safety issues, make plans to manage these risks and have the plans agreed to by the safety regulator. This approach is in contrast to prescriptive regulation and is designed to ensure that the responsibility of managing and achieving an appropriate safety outcome is left clearly with the business (ESV 2011).

There are potential complications arising from the interactions between the economic regulator, the network business and the safety regulator:

* While state-based regulators implement safety regulation, the funding required to achieve safety goals is determined by the AER. Without good coordination between these bodies, network businesses may exaggerate their expenditure forecasts based on safety requirements, with the AER unable to challenge these easily as it is not a technical regulator.
* In common with other estimates of capital expenditure, a network business has an incentive to persuade the regulator that some capital expenditure is necessary but then to defer expenditure on this project until the next regulatory period. The AER will be able to identify areas of expenditure that are intended to address safety concerns, but they will typically not wish to direct a business to make some explicit investment (in which case the regulator starts to take on responsibility for safety outcomes rather than leaving this responsibility with the business itself). This may allow the network to consistently over-recover the cost of safety based network expenditure.

An alternative approach to the intersection of economic and safety regulation is to use a performance-based incentive scheme, such as the Victorian F‑Factor scheme. This scheme is directed at fire safety and provides financial rewards and penalties based on the incidence of fires started by networks. The main advantage of this approach is that networks have a direct financial incentive to achieve particular goals. Consequently, they are less likely to reduce their effort where this effort is difficult to observe. It also allows networks to choose the best approach to meet these goals.

There are, however, several downsides to using this approach.

* Incentive regulation can only be used where the desired safety outcome can be clearly defined and measured. As a result, when designing the F‑Factor scheme, choices had to be made about what constituted a fire, whether all fires should be treated equally or whether larger fires or those on high fire danger days should be given greater weight.
* Using self-reported data provided by the networks could be problematic. As suggested by United Energy (2011), an incentive scheme may ‘place incentives on businesses to not report [fires]’.
* There are setup costs involved with designing and implementing an incentive‑based scheme.

Given these difficulties, it is unlikely that incentive based schemes will ever be able to achieve safety outcomes on their own. However, they may be a useful complement to other prescriptive regulations. The AER should monitor the success of the F‑Factor scheme in Victoria before choosing whether to expand this type of program.

### Incentives faced by state owned enterprises

In Australia, electricity networks were originally fully state-owned. While some jurisdictions have chosen to privatise their electricity businesses, public ownership is still widespread in the sector.[[31]](#footnote-31) The building block arrangements, which are designed to provide (profit motivated) firms a financial incentive to lower their costs, can work differently when applied to state-owned enterprises.

State-owned utilities obtain new capital from state governments by borrowing from state treasury corporations or retaining earnings that might otherwise be paid to the relevant government in the form of dividends. This funding is sourced by the state government by issuing debt, which, given the high credit rating of state governments, is acquired at a relatively low cost. Competitive neutrality arrangements should ensure that state-owned utilities enjoy no advantage with respect to their funding costs because of their government ownership. However, some parties claim that state governments provide low-cost debt and equity financing to state-owned electricity networks, as this will encourage investment and increase the overall return to the state treasury.[[32]](#footnote-32)

The Rules specify that the regulatory WACC should not take into account specific details of the firm in question, with the implication that the regulatory WACC should be the same for public and private firms. This has led to an ongoing debate about whether state-owned networks overinvest in order that their shareholders profit from the difference between their financing costs and the regulated rate of return. In turn, this has raised the question of whether the regulatory WACC should be lowered for state-owned businesses to remove any such incentive.[[33]](#footnote-33)

#### Risk should be priced by project rather than by institution

In principle, the return on an investment in the electricity sector should generally reflect the risk of the project, and not the underlying creditworthiness of the entity that funds it (a point also made by Grid Australia, sub. 22, p. 8). One way to illustrate this principle is that if a highly credit-worthy body, such as a state government, issues bonds and re‑lends the money to a more risky body, it marginally decreases its own credit rating (because it is exposed to the higher riskiness of the borrower). Accordingly, the project risk cannot be removed just because a creditworthy lender provides the finance. As a result, the WACC should not be lower in these circumstances.

However, there are potential incentives for state governments to provide debt and equity financing to state-owned networks at a lower rate than an equivalent private company would receive. This could occur because electricity networks represent a significant source of revenue for a state treasury. Offering the network businesses a lower financing cost would encourage them to increase their level of investment, which would flow through to higher electricity prices and returns for the state government.[[34]](#footnote-34) Supporting the state-owned corporation in this way could be achieved directly by offering debt financing at a lower rate than an equivalent private business or, more likely, being willing to accept a lower dividend stream in the shorter term than a private-sector shareholder (effectively providing low cost equity).[[35]](#footnote-35)

To the extent that governments behave this way, it may lead to greater than optimal levels of investment — a potentially significant source of economic inefficiency. Therefore, it is important that state governments:

* behave as an ‘arms length’ equity investor would, including demanding a return on equity and dividend payments that a private investor would require from a similar investment
* lend to state-owned network businesses (through their treasury corporations) at a rate that includes a properly calculated competitive neutrality fee. This is an adjustment that increases the borrowing cost to a level that the business would face were it to borrow in the private debt market.

If either of these conditions are not met, the state-owned business’s capital costs will be effectively subsidised, in turn encouraging it to over-invest.

Difficulties around estimating the return on equity (as discussed above), prevent a direct comparison of these costs between private and publicly owned networks businesses. However, it is possible to compare estimates of the debt financing costs of different network businesses. Table 5.1 (above) shows that the average estimated cost of debt in state-owned electricity businesses is 6.86 per cent compared with 7.59 per cent in privately owned businesses. Prima facie, there appears to be a difference between the borrowing costs of state owned and privately owned businesses, even after the application of a competitive neutrality fee.

However, there is a large degree of variation between different businesses, both public and private, that reflects the individual credit rating of businesses, the timing of their capital programs and balance sheet management strategy (including dividend policy and debt and equity raising strategies) in inherently volatile capital markets. As a result, it is difficult to determine whether competitive neutrality principles are being applied in such a way that publicly owned businesses are facing borrowing costs equal to those faced by an equivalent private sector firm.

Even if competitive neutrality principles were not being applied in a way that gives full effect to the principle underlying them, and state-owned enterprises were receiving capital at a cheaper rate than an equivalent private business, the regulatory WACC should not be adjusted to take this into account. If nothing else, it would be pragmatically difficult in any ex ante determination by the AER to estimate what an alternative WACC should be for any given state-owned business (noting the variability of margins shown in table 5.1). Instead, it is preferable to focus on ensuring that state governments provide networks with financing (both debt and equity) that reflects the risk of the investment (and to the extent it does not, reveal to state and territory citizens the likely magnitudes of any subsidies to state-owned businesses through low cost finance). Privatisation of state-owned networks, discussed in chapter 7, would resolve the issue without such complications.

#### Availability of debt and equity financing

The issue of cheap access to financing for state-owned network businesses is amplified by the fact that state treasury corporations appear to have been more likely to provide access to finance than if that finance were being provided to a privately owned network business, a point made by the Major Energy Users:

The clear indication is that the privately owned firms have the access to capital constrained more so than government owned firms which generally access needed capital in the form of debt from the government treasury corporations. That government owned energy firms have much more access to debt than privately owned firms have provides the government owned firms an incentive to invest more. (sub. 11, p. 18)

Such access was particularly important during the global financial crisis. During this time, state treasury corporations appeared to be willing to continue to fund large capital expenditures by their network business while most privately owned corporations appeared to find raising either equity or debt both expensive and problematic.

To avoid concessionary financing of state-owned enterprises, such enterprises should be subject to financial market disciplines (that is, they should access finance on the same terms and with the same disciplines applied as the private sector).

#### Tax neutrality

The goal of shareholders in a private firm is to maximise the long-term, post-tax returns of their business. However, under current competitive neutrality arrangements, a state-owned business pays an income tax equivalent to the state government (not the Australian Government). To the degree that a government shareholder can increase the capital spending of a network business, which is then rolled into the state-owned business’s regulatory asset base, it can trade off any decrease in the post-tax rate of return and its greater receipt of the income tax equivalent payment. A state government might conceivably influence a state-owned business in several ways. It could:

* be less aggressive in demanding only investment with adequate returns, and depending on the economic cycle, might be a more permissive financier than their private sector equivalents
* influence other aspects of the network business — for instance, by increasing the reliability standards beyond the level that corresponds with customers’ willingness to pay for increased reliability — which can inflate the business’s capital requirements and its regulatory asset base.

In saying this, the Commission is not arguing that state governments explicitly or strategically set out to exploit their effective capacity to earn pre-tax returns on such investments. However, shareholders’ usually strong incentives to constrain spending are likely to be muted.

It is hard to verify the extent to which this issue affects state government behaviour, but the incentives exist, as do perceptions by other stakeholders that governments react to these incentives (box 5.7).

As discussed above, it would not be appropriate to amend the WACC. Nevertheless, there are several policy responses that would reduce or remove the incentive problems.

In the absence of privatisation (which is the first best option), there are strong grounds to improve the effectiveness of competitive neutrality principles by removing the capacity of state governments to influence the capital expenditure decisions of the state-owned businesses. This would involve refining the governance arrangements of state-owned corporations (chapter 7). While not the main purpose of reform, the introduction of a NEM-wide probabilistically-based reliability framework for transmission businesses and the creation of a single incentive regime for appropriate reliability in distribution networks, would remove one avenue for governments to influence capital expenditure (chapters 15 and 16). In theory, and in line with Garnaut’s diagnosis of the source of the problem, it would be possible to amend the Commonwealth Grants Commission’s GST allocation principles for the company tax receipts of state-owned corporations. The Commission has not considered this as an option, because among other factors, it would involve all state-owned corporations in all states and territories. The practicability, impacts and desirability of such a broad-ranging change are not clear.

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| Box 5.7 Perceptions of governments influencing network decisions |
| Major Energy Users:  What does matter is that the government owner is incentivised to drive the government owned firm to chase increased profits as the government receives both the higher dividend and the higher corporate tax receipts which occurs when the government owned firm profit is unnecessarily high. As the government provides lower cost debt through the T-corps, and does not significantly limit the access to the debt, then the investment decisions of the government owned network are influenced by their shareholders. State governments set the reliability standards with little reference to the cost of these standards and thereby essentially influence the capital needs of the network firm. (sub. 11, p. 32)  The Garnaut Climate Change Review:  Further, where the State Government is the owner, it retains the tax allowance for which provision is made in the weighted average cost of capital. Unlike taxation, royalties and many other sources of revenue, the profits of state-owned businesses are exempted from the equalisation rules under which the Commonwealth Grants Commission allocates GST revenues amongst the states. So there are cascading mechanisms through which the shareholders of state-owned businesses — like most electricity distribution businesses outside Victoria — do well out of over-investment. (Garnaut 2011b, p. 42)  Bruce Mountain:  The combinations of profit, the income tax on the profit and the debt guarantee/competitive neutrality fees have provided government owners of network service providers with extra‑ordinary profits. In 2010 for example, the NSW Government received $596m in income tax equivalents and competitive neutrality fees from its distribution and transmission service providers and retailers. By comparison, dividends of $575m were paid in that year from these utilities … This can be expected to have increased the sympathy that government owned NSPs [network service providers] have had towards higher capital expenditure. This is because higher capital expenditure has led to a larger regulated asset base which in turn has delivered higher returns to state governments since the profit, income tax on profits and debt guarantee / competitive neutrality fees on the debt provided to fund the assets has risen as the asset base has expanded. (2012b, p. 18)  AMP Capital:  Although a state government does not have day-to-day control of its utilities, it exerts shareholder control and can effectively influence behaviour by demanding higher levels of dividends. In the absence of effective capital rationing, management can meet these demands most easily by maximising the capital spend, rather than implementing the degree of operational reform that would be necessary in an private sector-owned utility. (sub. DR55, p. 5)  The Gratton Institute:  In states where distribution companies are publicly owned, governments receive dividends from them. Governments acting as financiers also charge their companies competitive neutrality fees as well as interest on financing … These income streams mean that governments’ dual role as owners and financiers can provide incentives for government owned companies to spend more on their networks than they need to. Without proper separation between their two roles, governments can be tempted to treat competitive neutrality fees and tax equivalents as windfall revenues. (2012, p. 30) |
|  |
|  |

However, of all the options, privatisation — as recommended in chapter 7 — would automatically resolve any problems, while bringing a range of other benefits.

### Treatment of overspending

Under the current regulatory arrangements, all capital spending — regardless of its efficiency — is rolled into the regulatory asset base (RAB) at the end of the five‑year regulatory period.[[36]](#footnote-36) However, the AEMC has made a Rule change that allows the AER to conduct an ex post review of network spending commencing in the next regulatory period.[[37]](#footnote-37) Under the new Rules, the AER can review network spending where the network has exceeded the previously forecast levels, after adjusting for cost pass throughs.[[38]](#footnote-38) If the AER finds that the network spending has not been efficient, it may reduce the allowable capital up to the difference between the forecasts and actual capex.

The Productivity Commission made a similar recommendation in its draft report, and, accordingly, supports the Rule change. The Commission considers that such an ex post review should also be triggered for overspending on large projects covered by the transmission reliability and RIT-T arrangements spelt out in chapters 16 and 17.

The essential feature of ex post reviews is that the regulator only allows capital expenditure that it deems to be prudent and efficient (given the information available to the network business at the time of its investment decisions) to be rolled into the RAB. The approach is widely used overseas and was a feature of the NEM prior to 2006 (AER 2011a). Ex post reviews would not attempt to reoptimise the entire RAB. Rather, they would only look at investment spending from the previous regulatory period before allowing it to be included in the RAB. Also, given the difficulty that the AER will face in showing that spending, either on an individual project or across a portfolio, was inefficient, it is unlikely that ex post reviews will exclude significant levels of expenditure.

However, ex post reviews do contain some potential pitfalls. For instance, there is some risk of mistakenly identifying an efficient investment as inefficient. (If material, these risks would need to be reflected in the WACC.) The AER itself acknowledged that:

… ex post reviews may add to regulatory risk by creating potential for investment write downs. In addition, the evidentiary burden that the regulator must satisfy before it could disallow an investment is so high that ex post reviews may offer limited protection against inefficient expenditure. (2011a, p. 43)

As summarised by the AEMC, the industry view was (unsurprisingly) negative:

NSPs [network service providers] are not in support of ex post prudency and efficiency reviews of capex. They consider that a well-designed ex post prudency and efficiency review does not provide any additional incentives compared to a well-designed ex ante regime. (2012a, p. 119)

There have also been concerns that using ex post reviews to control the spending of network businesses may result in the AER needing to micromanage every aspect of network spending.[[39]](#footnote-39)

For this reason, the AER should not use ex post reviews as the major tool to incentivise networks. Rather, the Commission believes that ex post review should be seen as a complement to the ex ante incentive arrangements, to be used where there is persuasive evidence that overspending is inefficient (rather than reflecting cost pressures outside the control of the network business, such as increasing prices for key inputs into investment). It is likely that cases of overspending will decrease as a result of other reforms, such as the new WACC framework, an EBSS and the privatisation of networks, which will in turn decrease the importance of ex post reviews. Nevertheless, if used sparingly by the AER, the ex post review will provide a useful tool to encourage network efficiency.

## 5.4 The AER’s ability to determine expenditure forecasts

In determining expenditure forecasts, the AER must accept a network business’s revenue proposal if it ‘reasonably’ reflects the efficient costs of that business.[[40]](#footnote-40) However, prior to a recent Rule change, other parts of the Rules were interpreted by several stakeholders, including the AER, as requiring the regulator to undertake a line‑by‑line assessment of a business’s revenue proposal and to make its determination only on the basis of the proposal put forward by the business. The extent to which the Rules (as they applied at the time) actually constrained the AER’s decision-making or required it to take such a forensic approach has been vigorously debated.[[41]](#footnote-41) Certainly, the AER appeared to have successfully contested large initial proposals by network businesses (table 5.3).

Table 5.3 Distribution capex through the determination process

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Network operator | Network proposal | AER draft determination | Network revised proposal | AER final decision | Percentage reduction from original |
|  | $m | $m | $m | $m | (%) |
| CitiPower | 1 167 | 676 | 1 005 | 830 | 28.8 |
| Powercor | 1 879 | 1 300 | 1 826 | 1 567 | 16.6 |
| Jemena | 657 | 372 | 621 | 473 | 27.9 |
| SP AusNet | 1 484 | 1 066 | 1 582 | 1 481 | 0.2 |
| United Energy | 911 | 652 | 949 | 887 | 2.6 |
| Country Energy | 4 041 | 3 955 | 3 989 | 3 826 | 5.3 |
| EnergyAustralia | 7 381 | 7 158 | 7 050 | 6 638 | 10.1 |
| Integral Energy | 2 953 | 2 914 | 2 735 | 2 721 | 7.8 |
| Energex | 6 466 | 5 718 | 6 286 | 5 783 | 10.6 |
| Ergon | 6 033 | 5 013 | 6 274 | 4 989 | 17.3 |
| ETSA | 2 249 | 1 628 | 1 793 | 1 588 | 29.4 |
| ActewAGL | 287 | 278 | 298 | 275 | 4.0 |
| Aurora | 675 | 536 | 618 | 535 | 20.7 |

*Sources*: Various AER determination papers.

Nevertheless, through a recent change to the rules that included removing two ambiguous Rules,[[42]](#footnote-42) the AEMC has clarified that, while the AER must accept a reasonable proposal, the Rules do not place any restrictions on the analytical techniques that the AER can use to scrutinise and, if necessary, amend or substitute the network business’s capital expenditure or operating expenditure forecasts.

The Commission agrees with this amendment, but considers that the (retained) requirement for reasonableness plays an important role in the incentive regime, and needs to be interpreted carefully by the AER. This also has major significance for the role of benchmarking (chapter 8).

In that context, while it is unclear how effectively the process will work following the AEMC ruling, it is worth stepping back from the Rules and considering how the determination process should ideally operate. From the Commission’s perspective, some principles, however embodied in regulations, appear to be reasonable. In particular, the determination process should:

* in the first instance, be aimed at effectively achieving the National Electricity Objective
* be based on an economic, rather than a legalistic, mindset[[43]](#footnote-43)
* take into account the incentives faced by the interested parties and the information asymmetries between them
* take account of all information that can cost-effectively be incorporated into the analysis, including bottom-up and top-down approaches (and benchmarking), while recognising the relative strengths and weaknesses of such approaches (chapter 8)
* recognise that, over the longer term, under-compensation of network businesses resulting from regulatory errors is likely to have greater costs for customers and the wider community than ‘symmetric’ overcompensation (chapter 4).

Given these principles, a best practice approach for making determinations would work as follows:

* The business would put forward its proposal, with enough information for the AER to commence its assessment.
* The AER and the business would interact while the AER considered the proposal. There might be many points where the AER required clarification or further information, and instances where the AER might seek feedback from the business (for example, ‘Given the forecast demand, why couldn’t this substation be deferred by two years?’). This process — and engagement — would reduce information asymmetries, help develop expertise among AER staff and allow the AER to test its views about any alternative cost forecasts it had developed. The additional resources allocated to the AER would assist this consultative approach. It would also provide information that could be used in developing and interpreting benchmarking models.
* If, as a result of this process, the AER thought that the proposal was ‘reasonable’ it would accept it. In determining ‘reasonableness’ it would use the approach shown in figure 5.4. The AER would not seek to set the revenue allowance at the exact level that it perceived was necessary to provide the services required over the regulatory period (CB). Rather it would set the revenue allowance at the highest level that would be considered reasonable (which would be CH in figure 5.4).[[44]](#footnote-44)
* Setting the cost forecast above the best estimate reflects the fact that all estimates have errors, and that in this case, the impact of errors is asymmetric. In other words, the cost of providing a high forecast is less than that of a low forecast. This is also consistent with setting the benchmark performance of businesses below the frontier. This approach would create an expected rent for the business, but given uncertainty over cost forecasts would also insure the community against the risks of under-investment or poor management of assets.
* The AER could use any method that it regarded as appropriate — including aggregate and partial benchmarking, engineering models, and highly disaggregated information in forming its views about what CH should be. It would not be restricted to the original business proposal (as reinforced by the recent rule change). The AER would test the reasonableness of the overall capex and opex expenditure proposals, rather than the merits of all of their parts (an issue discussed further in chapter 8).[[45]](#footnote-45) This would increase the potential for the sensible use of benchmarking. However, given the difficulties associated with benchmarking identified in chapter 4, chapter 8 and by the AER itself, benchmarking would not play a determinative role.
* The expectation should be that the gap between CH and CB should not be too large, especially as the regulatory determination process is not a one-shot game. If the distribution network’s performance appeared to be degrading (reasonably easily established in the case of distribution networks), and the business appeared to be otherwise efficient, then the next regulatory period would take account of this.
* The AER should be transparent in the way that it determines CH and use a similar framework for each revenue determination. While this process will present a technical challenge for the AER (as discussed in their submission (sub. DR 92, p. 14)), it is a natural extension of the benchmarking process.
* The AER’s final determination would be subject to merits review if its holistic assessment were seen as failing the test graphically depicted in figure 5.4.
* The above process should, where possible, be the same whether it is considering transmission or distribution networks. However, in some other areas, such as reliability (chapters 15 and 16), incentive regulation will appropriately differ between distribution and transmission. In response to a request for feedback by the Commission, the AEMC argued that harmonisation of the incentive regulation arrangements was desirable where the policy intent was the same, but that given transactions costs, it was not clear that full harmonisation would be justified at this stage (sub. DR89, p. 3).

Figure 5.4 What is a reasonable cost?

|  |
| --- |
| Figure 5.4 What is a reasonable cost? This figure shows how a regulator approaches cost estimates and where the best cost estimate lies within the boundary of reasonable costs. The current regulations stipulate that the regulator must accept the first cost estimate that could just be described as reasonable, which may be higher than the best estimate of the cost. |

Generally, the above practical approach to determinations would not require Rule changes, but rather a set of practices adopted by the regulator and the businesses.

Nevertheless, it is possible that the recent changes to, and the AEMC’s clarifications of, the Rules, will not be sufficient to deliver outcomes that are closely aligned with the principles outlined above. The AER may find that instead of being permitted to set CH, continued flaws in the way the revised Rules work in practice mean that it ends up being obliged to set ĈH. For this reason, if in the future, the AER feels unduly constrained in the way that it can challenge a proposal, it should publish its preferred estimate alongside the official estimate used for revenue purposes. This should lead to any issues being brought into the public domain and resolved in a more timely manner. The information would also be relevant to any merits review of the AER’s determination.

Recommendation 5.2

Where the Australian Energy Regulator considers that the National Electricity Rules constrain its capacity to make appropriate revenue determinations, it should publish its preferred estimate along with the final determination, explaining the differences. In any subsequent merits review of its determination, the Australian Energy Regulator should ensure that the reasons behind its preferred estimate are clearly communicated to the merits review body.

1. Joskow (2008), Newbery (2010) and Vogelsang (2010) provide a more detailed discussion of incentive regulation. [↑](#footnote-ref-1)
2. Under Ramsey–Boiteux pricing, revenue is recovered by placing higher prices on consumers with more inelastic demand. [↑](#footnote-ref-2)
3. A recent rule change has replaced the regulatory test with the Regulatory Investment Test for Distribution (RIT-D) (AEMC 2012c). [↑](#footnote-ref-3)
4. Discussed further in Biggar (2004). [↑](#footnote-ref-4)
5. Yarrow (2011b) gives a number of reasons why a regulator may want to provide some rents when applying a regulatory regime. These include that a firm that earns a stable return is more likely to look to long-term payoffs and is less likely to engage in short-term opportunistic behaviour. [↑](#footnote-ref-5)
6. Within the current regulatory period, all capital spending is rolled into the regulatory asset base at the end of the five-year regulatory period. However, a recent rule change (AEMC 2012r, p. 116) has introduced an ex post review mechanism. Ex post reviews are discussed in section 5.3. [↑](#footnote-ref-6)
7. The building block approach does not apply to network augmentations in the Victorian transmission network, which are governed by an alternate set of arrangements that are described in appendix F. [↑](#footnote-ref-7)
8. Which can be influenced by efficient network pricing, as discussed in chapter 11. [↑](#footnote-ref-8)
9. The Rules, clauses 6.5.6(c), 6.5.7(c), 6A.6.6(c) and 6A.6.7(c). [↑](#footnote-ref-9)
10. As stated in the Statement of Regulatory Intent on WACC parameters, revenue determinations assume that D/V is equal to 0.6 and E/V is equal to 0.4 (AER, 2009b, p. 6). [↑](#footnote-ref-10)
11. The nomenclature has changed in the Rules for the EBSS for capital to a Capital Expenditure Sharing Scheme for both distribution and transmission networks (for example, pp. 634ff and pp. 755ff of the Rules v. 54). The Commission has continued to use the term EBSS for any efficiency sharing scheme, regardless of whether it applies to opex or capex. [↑](#footnote-ref-11)
12. In the case of regulatory intervention, such as a tax change, cost pass throughs stop governments appropriating the value of a sunk asset. [↑](#footnote-ref-12)
13. Defined in chapter 10 of the Rules, an insurance event occurs where either (a) the cost of insurance through premiums or deductibles is greater than 1 per cent of the maximum allowable revenue, (b) insurance is not available, or (c) the terms of the insurance arrangements change materially during the investment period. [↑](#footnote-ref-13)
14. As described in schedule S6A.1.3 (10) of the Rules and by the AER (2007c). [↑](#footnote-ref-14)
15. Based on the supplementary paper ‘Power of Choice Review’ (AEMC 2012b, p. 3) [↑](#footnote-ref-15)
16. Such as increased access for generators or reliability for customers. [↑](#footnote-ref-16)
17. Including from Ergon Energy (sub. DR63 p. 3), the Major Energy Users (sub. DR66, p. 23), the AER (sub. DR92, p. 12) and Grid Australia (sub. DR91, p. 9). [↑](#footnote-ref-17)
18. For example, the AER is required under the Rules to develop guidelines for the rate of return by late 2013 (p. 638 of the Rules v. 54). [↑](#footnote-ref-18)
19. These guidelines are currently being developed through the AER’s Better Regulation reform program (AER 2012s). [↑](#footnote-ref-19)
20. A continuous incentive scheme would apply equal incentive strength to spending through time. A symmetric scheme would reward underspending at the same rate as it punishes overspending. [↑](#footnote-ref-20)
21. A similar calculation can be found in AER (2011a, p. 40) and Jemena (sub. DR77, attachment 1, p. 6). [↑](#footnote-ref-21)
22. The existing EBSS for opex allows firms to retain the benefits of an efficiency improvement for five years, after which the improvement is incorporated into the revenue calculations. For example, if an efficiency gain is made in year three of the regulatory period, the revenue allowance will not adjust to incorporate this until year three of the next regulatory period. [↑](#footnote-ref-22)
23. To successfully implement an EBSS for capital expenditure, it is necessary to distinguish between expenditure that has been saved through more efficient construction or planning outcomes, and expenditure that has been deferred. If spending that is deferred between periods is included in the next regulatory determination as a new project, it may appear that the entire project has been avoided and the costs counted as long-term savings, for which the networks will receive a large payment. [↑](#footnote-ref-23)
24. A point made by the Energy Networks Association (ENA 2011a, p. 30). [↑](#footnote-ref-24)
25. The return on equity is determined by investors’ expectations of future returns, which can only be partially observed through the experienced return and cannot be measured reliably. The Gratton Institute (2012, p. 18) has analysed the methodology for calculating the regulatory cost of equity and found that it is also likely to overestimate the true cost of equity for networks. [↑](#footnote-ref-25)
26. The calculation uses data from the end of the financial year, which may not be typical of the rest of the year. The calculations also abstract from issues such as short versus long-term financing and refinancing risk. [↑](#footnote-ref-26)
27. In particular, networks have argued that businesses have been forced to borrow funds with a shorter date to maturity, and that the lower cost of debt has been offset by an increased refinancing risk. A summary of these responses is provided by the AER (2012c, p. 55) and by Jemena (sub. DR77, attachment 1, p. 12). [↑](#footnote-ref-27)
28. For example, ETSA Utilities et al. (sub. 6, p. 40) and to some extent the Queensland Treasury Corporation (sub. 12, p. 4). [↑](#footnote-ref-28)
29. A regulatory impact statement process has been initiated. [↑](#footnote-ref-29)
30. While the presence of insurance policies covering loss from fire damage may reduce the network business’s exposure to fire damage, insurance contracts are generally written so that the insured party still has an incentive to manage risk. This can occur through a policy excess or through specific terms written into the contract that specify expected behaviour such as maintenance practices or fire safety plans. [↑](#footnote-ref-30)
31. Network businesses are publicly operated in New South Wales, Queensland and Tasmania and privately operated in Victoria and South Australia. ActewAGL in the ACT is partially privatised. [↑](#footnote-ref-31)
32. State governments’ actions suggest that they are sometimes willing suppliers of ‘low cost’ equity and debt financing. This may occur because the opportunity cost of their funds is effectively the cost of the relevant state government debt, which is significantly lower than that of similar private sector firms and that allowed by regulators. [↑](#footnote-ref-32)
33. Those involved in this debate include: Garnaut (2011b, p. 42), the AEMC (2012a, p. 80), Major Energy Users (sub. 11, p. 32), Grid Australia (sub. 22, attach. 1, p. 30), the Energy Networks Association (sub. 17, app. C, p.16), Ergon Energy (sub. 8, p. 16) and the Energy Users Association of Australia, (trans., p. 94). [↑](#footnote-ref-33)
34. In effect, given its high credit rating and legal restrictions binding what it can invest in, the state treasury may be willing to accept a lower rate of return in order to increase the total level of investment, and therefore increase the total level of overall return. [↑](#footnote-ref-34)
35. If the discount rate used by a state treasury is lower than a private sector creditor, they will be more patient when trading off current and future dividends. [↑](#footnote-ref-35)
36. Jemena (sub. DR 77, attachment 1, p. 9) point out that while capex is automatically rolled into the RAB, if excess spending in one period led to lower capex allowances in the following period, it could provide similar incentives to excluding funds from the RAB. [↑](#footnote-ref-36)
37. National Electricity Rules v. 54, pp. 730ff and 850ff. [↑](#footnote-ref-37)
38. The AER can also exclude funds from being rolled into the regulatory asset base where they relate to inefficient related party margins or a change in capitalisation policy. This can occur regardless of whether the network has exceeded the capital forecast. [↑](#footnote-ref-38)
39. Such as Jemena (sub. DR77, p. 7) and the AER (sub. DR92, p. 13) [↑](#footnote-ref-39)
40. NER clauses 6.5.6(c), 6.5.7(c), 6A.6.6(c), and 6A.6.7(c). [↑](#footnote-ref-40)
41. For example, AER (2011a, p. 13; 2012c, appendix 2), the ENA (2011a, appendix C, p. 50), (AEMC 2012a, p. 104), Allan Fels (2012, p. 57), Ergon Energy (sub. 8, p. 14), The Consumer Action Law Centre (sub. 5, p. 4), ETSA Utilities et al. (sub. 6, p. 3), The Brattle Group (2012b, p. 10) and Michael B Cunningham (sub. 28, p. 13). [↑](#footnote-ref-41)
42. Clauses 6.12.3(f) and 6A.13.2(a). [↑](#footnote-ref-42)
43. A point made by the Energy Users Association of Australia (sub. 24, p. 11). [↑](#footnote-ref-43)
44. While this may appear to re-establish the principles set down in the now abandoned clause 6.12.3(f)(2), it is quite different because it does not constrain the AER in respect of the matters or methods it can bring to bear in making a judgment about reasonableness. It remains consistent with the remaining clauses specifying the requirement for ‘reasonableness’ (clauses 6.5.6(c), 6.5.7(c), 6A.6.6(c), and 6A.6.7(c)). Above all, the Rules do not preclude the AER from taking this approach. [↑](#footnote-ref-44)
45. Given a margin of error around each component of a revenue determination, erring on the high side of every component would translate to an excessively high (and therefore unreasonable) aggregate expenditure estimate. [↑](#footnote-ref-45)