Public utility regulation in Australia: Where have we got to? Where should we be going?

Darryl Biggar

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SERIES NOTE

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This paper was prepared for a meeting of the Utility Regulators Forum. Comments and feedback are gratefully acknowledged but the views remain those of the author alone and not the ACCC, the AER, or the other members of the Utility Regulators Forum.
# CONTENTS

1. Introduction .......................................................................................................................... 6

2. The point we have reached ................................................................................................... 10
   2.1 Concerns with the current regulatory arrangements in Australia ........................................ 11

3. The rationale for public utility regulation ........................................................................... 21
   3.1 Preliminary considerations .................................................................................................. 21
   3.2 The neoclassical rationale for public utility regulation ....................................................... 23
   3.3 Alternative rationales for public utility regulation .............................................................. 27
   3.4 The sunk investment approach to public utility regulation ................................................. 30

4. Public utility regulation as a form of long-term contract .................................................... 35
   4.1 The fundamental tension in long-term contracts .................................................................. 35
   4.2 Long-term contracts and the history of utility regulation ..................................................... 36
   4.3 The role of the regulator in the regulatory contract ............................................................... 37
   4.4 Should Australian regulators play the role of the consumer advocate or the role of independent arbitrator? .................................................................................................................. 38

5. Implications for public utility regulation in Australia ......................................................... 42
   5.1 Enhancing the role for consumers and their representatives ................................................ 42
   5.2 Clarifying the role of the regulator and appeal rights .......................................................... 44
   5.3 Changes to the status of the firm’s proposals at the time of each regulatory reset ................ 46
   5.4 Changes to the handling of government-owned businesses .................................................. 47
   5.5 Strengthening and clarifying the regulatory contract ............................................................ 47
   5.6 Changes in the approach to capital expenditure and the cost of capital ............................... 48

6. Conclusions ............................................................................................................................ 50

Appendix A: A brief history of public utility regulation in the US, the UK and Australia 52
Appendix B: The evolution of the length of regulatory decisions over time ....................... 61

References .................................................................................................................................... 66
The approach to regulating public utilities in Australia has its roots in the UK utility regulation framework developed in the 1980s. That framework was intended to improve on what was perceived to be the restrictive, inefficient and burdensome regulatory approach in the US. But regulatory processes in Australia and the UK have, over time, become increasingly burdensome and there are growing doubts as to how well they protect consumers. With around 15 years of experience with public utility regulation in Australia, it is timely to ask whether a better approach is available.

Dr Biggar argues here (as elsewhere) that, in order to know whether we can do better, we must first understand what problem utility regulation is designed to solve. He suggests that public utility regulation should be viewed through the lens of transactions cost economics. Conventional utility regulation is one form of governance mechanism for resolving the hold-up problems that arise from the need for both the monopoly supplier and the customer to make sunk relationship-specific investments. In this piece Dr Biggar argues that this perspective allows us to understand both the history of public policy towards monopoly industries and current regulatory practices.

Dr Biggar also argues that this perspective gives a basis for developing policies for further reform of public utility regulation. In particular, this perspective provides insights into the role of the regulator and the tension between ex ante prescription in the regulatory rules and the need for ex post discretion. Among other things, this perspective clarifies the key potential role for negotiated arrangements between customers and monopoly service providers, with the role of the regulator limited to that of a backstop or dispute resolution body.

I have argued elsewhere that such approaches offer the possibility of a less onerous yet more effective form of utility regulation, better able to identify and protect the interests of consumers. I am therefore particularly pleased to be invited to write this Foreword to Dr Biggar’s paper.

Stephen Littlechild, Fellow, Judge Business School, University of Cambridge
1. Introduction

This paper has four broad goals:

1. To list the current issues and concerns with public utility regulation in Australia;
2. To highlight problems with the conventional economic rationale for public utility regulation;
3. To set out a framework for understanding public utility regulation; and
4. Based on the proposed framework, to propose a list of potential future reforms.

Is public utility regulation in Australia performing according to expectations? Although the details vary from industry to industry, there are at least some signs that public utility regulation in Australia is not quite on the right track. Regulatory decisions are becoming increasingly lengthy and technical. Regulators are increasingly spending large amounts of time and resources pursuing detailed or arcane issues. Consumer participation and involvement in regulatory processes remains limited and weak. Despite attempts to implement incentives for efficiency, government-owned regulated businesses have expanded their regulatory asset base much faster than privately-owned regulated businesses. In some sectors, the appeal processes seem to benefit the regulated firms and to force regulators to justify their decisions on even apparently minor issues. The overall outcomes seem to be somewhat biased in favour of the interests of the regulated firms.

But, we cannot make an assessment of whether or not public utility regulation is on track without a clear understanding of what that regulation is designed to achieve. We must first understand the primary economic rationale or purpose of public utility regulation. The fundamental rationale for public utility regulation has not been well understood, particularly by economists. Mainstream neoclassical economists have argued that the primary rationale for regulation is the minimisation of so-called ‘deadweight loss’. But, on close inspection, this hypothesis does not fit the observed facts. There is substantial evidence that regulators do not, in practice, behave as though the minimisation of deadweight loss is their primary objective.

This paper argues for an alternative approach to public utility regulation. This alternative approach, drawing on transactions cost economics, emphasises the importance of sunk, relationship-specific investments, particularly by customers of the monopoly service provider. Customers recognise that investments they make in reliance on the monopoly service are subject to the risk that, once the investment has been sunk, the monopolist might raise its prices to extract some of the value of that investment. Fearing this classic ‘hold-up’ problem, the parties seek some protection for their investments. In some industries this protection is offered through vertical integration (including government ownership) or long-term contracts. But both vertical integration and long-term contracts have their drawbacks. There are substantial transactions costs associated with creating and enforcing long-term contracts, particularly when the future is uncertain.

This paper argues that public utility regulation is an alternative, transactions-cost minimising, mechanism for protecting and promoting sunk relationship-specific investments by both the service provider and its customers. Public utility regulation is a flexible form of long-term contract, with periodic adjustment of the terms and conditions of the contract overseen by an independent authority known as the regulator. This paper suggests that the regulator should seek

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1 This paper deals with public utility regulation, which is taken here to mean the control of the terms and conditions of monopoly service providers by an independent authority. Public utility regulation is here distinguished from the myriad other forms of government action in the economy which also often go under the heading of ‘regulation’, including environmental regulation, health and safety regulation, land use regulation, retail regulation, regulation of advertising, and so on.

ACCC/AER working paper no. 4, July 2011
to recreate the long-term contract that the parties themselves would have negotiated if they could have costlessly negotiated before sinking any investment.

The third part of this paper draws out the implications of this approach to identify several possible directions for regulatory reform in Australia. The following proposals emerge as possible directions for reform:

There is scope for increasing the role and responsibility of consumers in the regulatory process. If, as argued here, the regulatory framework should be designed to reproduce the long-term contract that the service provider and the consumers would have agreed before either made any sunk investment, then, in the first instance, the key characteristics of the regulatory contract should be decided by the service provider and the customers themselves. The regulator can, at best, only act as a proxy for the interests of customers. As long as customers are disempowered in regulatory processes, they have an incentive to criticise and undermine the regulatory decisions that emerge. The inclusion of customers in the decision-making process, by making them a party to the regulatory settlement, would ensure that customers take some responsibility for the resulting outcomes. A few Australian industries, such as airports, aviation navigation services, and coal railways, already have explicit customer consultation arrangements. Involving customers directly in negotiation with the service provider may be difficult — customers have diffuse and disparate interests that may not easily be organised and represented in the regulatory process. Many US states have created a separate entity (often known as an Office of the Consumer Advocate) explicitly tasked with representing consumers and users in the public utility regulation process. There are several potential options worth exploring further.

There is a need to clarify the role of the regulator itself. At present there is some confusion whether a utility regulator in Australia should act on behalf of customers, soliciting and promoting their views, or whether it should objectively weigh and assess the claims of both parties — playing the role of an independent arbitrator. This is particularly an issue for the Australian Competition and Consumer Commission ("ACCC") which plays a consumer protection role in other sectors. The combination of increasing political pressure on utility prices, combined with weak and ineffective representation from consumer groups, is leading to increased pressure on regulators such as the ACCC and the Australian Energy Regulator (AER) to exercise a customer protection role. This paper argues that customer advocacy and independent arbitration are two distinct roles which should be performed by two different entities. Public utility regulators in Australia should play the role of the arbitrator, not the consumer advocate, with consequences for the role of appeals.

There is a need to clarify the grounds for appeal. If, as just mentioned, the regulator is to play the role of the independent arbitrator, appeals should be limited (as in commercial arbitration) to points of law. According to the approach set out in this paper, the utility regulator exists to manage variation in the long-term regulatory contract according to changing market circumstances over time. This role involves establishing and implementing policies, periodically updating the terms and conditions in the contract, and resolving disputes. In order to expedite this process, the regulator must have the discretion to carry out its tasks and to focus its efforts in a manner which keeps costs down for the service provider and its customers. Allowing appeals on individual elements of a decision forces the regulator to give all elements of a decision detailed consideration, increasing the time taken and length of regulatory decisions. Allowing appeals on merits also shifts the role of decision-maker to a higher level (such as the courts or the Australian Competition Tribunal) which may not have the same degree of industry knowledge or expertise. Finally, because the composition of a court or tribunal varies over time, such a body may not be able to provide the same level of consistency and predictability in decision-making over time as a long-lived regulator. Customer groups have, in practice, not been able to access the appeal provisions in the electricity
sector, allowing service providers to use the right to appeal individual elements of a decision to shift outcomes further in their favour. Appeals should be limited to points of law and should be equally available to both the service providers and the customers.

At least in some industries, the existing regulatory processes seem to not correspond to the arrangement that the parties would themselves have negotiated at the outset — rather, the existing regulatory processes seem to favour the regulated firms. For example, the current arrangements in the electricity rules allow the AER to amend the capital expenditure (capex) and operating expenditure (opex) values proposed by a firm ‘only to the extent necessary to enable [them] to be approved in accordance with the Rules’. This has, in practice, limited the ability of the AER to substitute a value that it considers fully reasonable in the circumstances. A possible alternative would be to reverse the burden of proof by, for example, allowing existing pricing paths to be maintained until the service provider can demonstrate that doing so is unreasonable or that there has been a material change in circumstances. In some sectors in Australia (such as telecommunications or rail) the service provider has not, in the past, been required to maintain and ‘roll forward’ a regulatory asset base over time, giving scope for substantial periodic revisions to the asset base, and undermining assurances to customers that prices will not rise in the future.

There is a need to re-think regulatory policies towards government-owned businesses. It is well known that if a regulator over-estimates the cost of capital, the regulated firm will (other things equal) have an incentive to expand its regulatory asset base. Under current policies, government-owned businesses and privately-owned businesses are treated identically in regulatory proceedings. To the extent that, in practice, government-owned businesses have a lower cost of capital than privately-owned businesses, they will have a greater incentive to expand their regulatory asset base, even if the governance arrangements on the government-owned business are otherwise effective. Moreover, the presence of an independent regulator over which state governments have little apparent control allows government owners to deflect the blame for higher prices. This may create an incentive for government owners to use any behind-the-scenes influence they may have over the regulatory regime or the regulator to require higher levels of expenditure and/or ensure that the regulatory outcomes are not too tough on their firms. These issues could be resolved through privatisation. A possible alternative is to allow regulators to treat government-owned businesses differently to privately-owned firms, particularly in setting the allowed cost of capital. A third alternative for handling government-owned businesses might be to shift pricing policies back to the state or federal government owners with the regulator playing only information-collection, enforcement and compliance, and advisory roles.

There is scope for strengthening the existing regulatory pricing principles to better promote the long-term interests of consumers. For example, the existing pricing principles could place a greater emphasis on long-term price stability, non-discrimination, and the principle that any change in the regulatory framework (such as a new investment, a new service, or a new pricing structure) should leave no existing customers worse off. Achieving long-term price stability requires taking a long-term perspective — well beyond the next five-year regulatory period. At present the building block model is applied mechanistically with little, if any, consideration of future-period changes in demand or costs. Existing customers should be protected from price rises related to network expansions or the need for large-scale network replacement (the ‘wall of wire’ argument). Furthermore, under the current electricity rules, individual customers are not protected against the possibility of being moved involuntarily to a new tariff class under which they will pay more for electricity (even if customers as a whole are not worse off). The current moratorium on time-of-use tariffs in Victoria is an example of a
political response to the legitimate fear that the existing regulatory regime will not protect consumers from potential adverse changes in tariffs in the future.\(^2\)

In most cases, the handling of major risks in regulatory regimes in Australia is under-developed and non-transparent. Major risks include changes in demand or costs which have impacts over several regulatory periods, such as the development of competing technologies, large-scale changes in demand, major weather events, and so on. Demand for airport services, for example, is sensitive to overall financial conditions and terrorist events. Demand for coal railways depends on world coal prices which vary with international financial conditions. Service providers and customers should know the risks they will be expected to bear in advance and should be compensated accordingly. These arrangements should be made explicit in the regulatory contract. There are some attempts to develop regulatory frameworks which allow for explicit handling of risks (such as the development of a new regulatory framework for the NBN) but, in general, the assignment of responsibility for major risks is not particularly clear.

Finally, there is scope for re-thinking the role of the cost of capital and the regulatory asset base. The current practice of a single cost of capital applied to a single regulatory asset base creates strong incentives for the regulated firm to invest substantial resources in the regulatory process to achieve very small changes in the allowed cost of capital. This is compounded by the problem that technologies for estimating the firm’s ‘true’ cost of capital are imprecise. It is not clear that a framework in which there are persistent, costly and arcane disputes over the cost of capital would arise in a hypothetical ex ante negotiation between the service provider and its customers. Instead, it seems likely that the parties would recognise the potential for substantial future ongoing disputation over the cost of capital and would shift to an alternative methodology for ensuring that investment by the service provider is adequately compensated. One possible alternative is a shift to a project-financing approach under which capital costs are negotiated on a project-by-project basis, perhaps through a form of competitive tendering for each project. Another approach is to finance capital expenditure through customer-owned financing agencies. There is some exploration of these approaches in Great Britain and Northern Ireland.

\(^2\)Interestingly, this problem was created by government decisions which mandated the roll-out of smart meters in the first place.
2. The point we have reached

The modern period of public utility regulation in Australia dates back to the competition policy reforms of the mid-1990s. But, monopolies and monopoly regulation have been around for much longer. Governments in the UK and the US struggled for much of the 19th century with issues related to the regulation of monopolies before settling on the forms of regulation and government ownership that we observe today. Much of the experience gained in that struggle is directly relevant to public policy issues in utility regulation today. Appendix A summarises the history of public utility regulation in the US, UK and Australia.

Fifteen years after the major reforms of the 1990s it is timely to make some assessment of the point we have reached — not of the package of national competition policy reforms as a whole but of the experience with public utility regulation in particular.

In principle, any assessment of the experience with public utility regulation in Australia requires a clear understanding of the underlying public policy objectives. Without a clear answer to the question of exactly what public utility regulation is intended to achieve it is not possible to make any coherent assessment of the outcomes that have been observed. The next section explores this question in detail.

However, at the risk of proceeding in an illogical order, this section sets out a list of concerns regarding the point we have reached with public utility regulation in Australia. This focus on concerns should not diminish the significant achievements that have been achieved.

There is a risk that any list of concerns will appear biased to one side or the other. Inevitably, what constitutes a problem with the regime depends on where you sit. A policy which is a glaring failure by one party may be seen as quite acceptable to another. Nevertheless, recognising the subjective nature of the task, a list of possible concerns is set out below. This list is not intended to be in any particular order.

1. It is not clear that the increasing resources expended in reaching regulatory decisions are resulting in commensurate benefits to consumers and the regulated firms.

2. In the energy sector the current rules and processes place weight on the proposals of the regulated firm which are unduly in the favour of the regulated firm.

3. Regulatory policies towards government-owned firms have given rise to undesirable incentives to inflate the size of the regulatory asset base.

4. In the energy sector the appeals process encourages cherry-picking in a manner which is unduly favourable to the regulated firms.

5. Users and consumers play a relatively limited and ineffectual role.

6. It is difficult to assess whether customers are receiving value for money.

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3 Gray (2009).

4 Other papers have sought to assess the benefits arising from the National Competition Policy (NCP) reforms. For example, in a recent report the OECD writes that: ‘The regulatory transformation wrought on the Australian product markets over the 1990s has proved extremely beneficial. Together with other micro and macroeconomic reforms, the progressive implementation of the NCP led to improvements in the quality of services, efficiency gains and price cuts and contributed to the surge in productivity in the 1990s. According to the Productivity Commission, the implementation of the NCP resulted in a 2.5 per cent rise in GDP. Much of this GDP increase came through productivity improvements. Price falls in telecommunications and electricity were also found to be of substantial benefit given the importance of these sectors to businesses and households.’ OECD (2010), page 52.
7. The building block model tends to be applied in a short-term mechanistic fashion with relatively little view to long-term price paths and risks.

8. Debates over the cost of capital have been intense and litigious from the outset and are becoming increasingly arcane over time.\(^5\)

Each of these issues is discussed in turn in the sections below:

### 2.1 Concerns with the current regulatory arrangements in Australia

#### 2.1.1. Are the increasing resources consumed commensurate with the benefits?

Substantial resources are tied up in regulatory processes. There is some evidence that these costs have been increasing over time. One possible measure is simply the length of the regulatory decision documents themselves. Appendix B shows how regulatory decisions in Australia are becoming systematically longer over time. Over the past 12 years, each subsequent regulatory decision in electricity transmission and distribution has been on average 75 per cent longer than the previous decision. Where there have been two consecutive regulatory decisions, the most recent decision document is between two and four times longer than the corresponding decision document 10 years earlier. The decision documents on the Victorian electricity distributors reached 433 pages in 2000, 967 pages in 2005, and 1833 pages in 2010 — a more than four-fold increase.\(^6\)

In addition to the increasing length of regulatory decisions, concerns have on occasion been expressed about the length of time taken to reach those decisions. In 2005 the Exports and Infrastructure Task Force noted:

> ‘It is understandable that it takes some time for regulators to come to final decisions on complex issues involving very high stakes for the parties and the community. However, it also needs to be recognised that delay has a real cost, and that there comes a point where the search for ever greater accuracy yields steeply diminishing returns. In at least some instances, regulatory processes in Australia seem to have gone well beyond that point, with decisions taking three years or more.’\(^7\)

A mere increase in the time or resources devoted to regulatory processes is not, in itself, cause for concern, provided that the extra resources are delivering commensurate extra ‘value’ for the affected parties.\(^8\) It could be, for example, that longer decisions are necessary to set out or fine-tune regulatory controls in a way which creates value for the participants. However, the question arises whether the extra time and resources that we observe are delivering commensurate extra benefits to customers.

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\(^5\) Some concerns with the existing arrangements and proposals for change can be found in a speech by Andrew Reeves, chair of the AER (Reeves, 2011).

\(^6\) The first two of these decisions were carried out by the Essential Services Commission of Victoria, operating under the framework of the *Victorian Electricity Industry Act 2000* and the associated Tariff Order; the last decision was made by the AER operating under Chapter 6 of the *National Electricity Rules*. The differences in the lengths of the documents may be due as much to differences in the regulatory regimes than to differences in the practices of the regulatory bodies.

\(^7\) E&ITF (2005), page 44.

\(^8\) The intention in this section is to identify concerns and not to suggest that any particular solutions, such as time limits on regulatory decisions, are desirable. Mandated time limits may, indeed, create more problems than they solve. The point here is to ask whether the benefit of longer decision-making processes exceeds the benefit at the margin.
There are two possible underlying reasons which might explain why regulatory decisions are consuming more resources over time. The first relates to the scope for appeal which is addressed further below. The second relates to the notion of an ‘arms race’.

There is a concern that regulatory proceedings might have something of the character of an ‘arms race’. Under an arms race an increase in expenditure by one side must be matched by an increase in expenditure by the other, if one side is not to gain an advantage. Yet, overall, the social value of the expenditure at the margin is low — since much of that expenditure merely has the effect of neutralising the expenditure of the other side. The overall outcome has something of a ‘prisoner’s dilemma’ — both sides would be better off if they could coordinate on a lower spend, but neither side has a unilateral incentive to do so. Professor Littlechild talks about stakeholders spending time and money knocking down the arguments of the other side rather than devoting efforts to finding a mutually advantageous way forward.

There is also a related concern that decisions are becoming increasingly technical and detailed and the associated mechanisms increasingly complex. Again, this raises the question whether the benefits of the additional complexity outweigh the costs in terms of clarity, transparency, and accessibility of the regulatory outcomes.

Similar concerns have arisen in the UK. Professor Littlechild has estimated that the number of documents issued in the UK electricity distribution price control reviews increased eightfold in the first three reviews. Observations of the fourth review suggest it may have doubled again. Professor Littlechild has argued that in the UK regulatory processes have become steadily more complicated and more costly over time, involving ‘much more complex calculations and incentive mechanisms than the parties would embody in a negotiated settlement’.

‘Indeed, the burden of the typical UK approach is now so great that it rivals the burden of the US approach in the 1970s that we sought to avoid. If we had seen present UK regulation in action then, I suspect we should have been equally keen to avoid it.’

One of the primary reasons for launching Ofgem’s RPI-X@20 review was to address the perception that the regulatory arrangements in the energy sector had become too complex and cumbersome over time, and that this might be restricting the abilities of some parties to participate in the regulatory process.

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9 The concern here is not specifically related to the size or the budget of the regulatory agencies themselves. The total budget of regulatory agencies in Australia may, in fact, have decreased over time. The transfer of responsibility for electricity distribution from the state agencies to the AER may have resulted in a reduction in the overall resources dedicated to the regulation of electricity businesses (I am not aware whether or not such a study has been carried out).

10 Littlechild (2009), page 11.

11 See, for example, the presentation of Houston (2009) at the ACCC Regulatory Conference.


14 Ofgem often mentions its concerns to avoid unnecessary complexity in its RPI-X@20 documents and presentations — e.g. Nixon (2009).

15 Despite this, consumer groups in the UK have criticised the outcome of the RPI-X@20 review on the grounds that it does not adequately address this problem of ‘complexity creep’: ‘A recurring theme of our previous RPI-X@20 review and DPCR5 responses has been concern over the undue complexity already embedded in the typical price review process. …[W]e can see much to suggest the [new post-RPI-X@20] processes will become more complex than at present, with a proliferation in guidance and bureaucracy. …
2.1.2. Do the Electricity Rules place undue weight on the proposal of the regulated firm?

There is a concern that the current Electricity Rules place undue weight on the proposal of the regulated firm and limit the ability of the regulator to adjust that proposal towards something that it considers reasonable. This concern is explained in detail by Mountain and Littlechild (2010):

‘In setting price controls with a building block approach, a regulator has to make assumptions about future parameters such as the level of demand, opex, capex, cost of capital, etc. In [Great Britain] these assumptions are entirely a matter for the regulator: the onus of proof is on the distributors to persuade the regulator to adopt the assumptions in their own proposals. The same was true in NSW under regulation by IPART. In contrast, the National Electricity Rules require the AER to accept a distributor’s cost proposals if it considers the costs are “efficient, prudent and reasonable”. During a price control review, each distributor produces an expenditure proposal for the AER’s consideration. … Effectively the burden of proof shifts to the AER to justify its decision if it chooses different parameters to those proposed by the distributor.’

Concerns over the burden of proof provisions were raised while the current regime was being established, by the AER Board17, by consumer groups18, and by a panel of independent advisers established by the Ministerial Council on Energy.19 In its Final Decision the AEMC responded to these concerns, asserting that it had no intention to impose a legal burden of proof ‘in the manner that is commonly understood’ and that it did not intend to allow for ‘such a range of permissible outcomes that there is a risk of inherent bias toward higher amounts’.20 As a compromise it decided to allow the AER to accept a service provider’s proposal if it is satisfied that the amount ‘reasonably reflects’ efficient and prudent costs.

The AER has, in practice, routinely chosen to reject the capex and opex proposals put forward by the regulated businesses, so the problem is not that the AER has not been able to overcome the burden of proof as commonly understood. Rather, the current problem seems to lie with the clauses in the Rules which limit the extent to which the AER can vary the firm’s proposals. Specifically, the AER is allowed to vary a firm’s proposal only to the extent necessary to allow it to comply with the Rules.21 Even though there is no formal ‘burden of proof’ on the regulator,

We also share the concerns relating to the number and variety of different incentive schemes, which create a major part of the complexity in price controls.’ Consumer Focus (2010), page 10. The UK House of Lords inquiry on UK regulators observes that ‘Ofgem’s approach had sometimes let economic theory outweigh considerations for more simple or practical solutions, which would have helped to keep down staff and consultancy costs’. House of Lords (2007), paragraph 40.

16 Mountain and Littlechild (2010), page 6. There is some dispute over the claim by Mountain and Littlechild that the AER has no obligation to justify its decision if it accepts the firm’s proposals. The contrary view is that the AER must justify its decision even when it merely accepts the firm’s proposals. See also AER (2010), page 6 and EUAA (2010), page 15.


19 ‘There is little doubt that a propose-respond model (particularly in the form proposed by the Productivity Commission) would over time lead to a systematic increase in the returns to regulated entities relative to the receive-determine model. This is because it seems improbable that, given the choice of proposing an estimate within a range, the regulated entity will opt for other than its estimate of the upper end of the range.’ Expert Panel (2006), page 78.

20 AEMC (2006), page 52.

21 NER clauses 6.12.3 (f) and 6A.13.2 (a).
the pricing proposal put forward by the regulated firm is a prime determinant of the ultimate regulatory outcome. The view of consumers or customer groups as to the appropriate pricing proposal is, in effect, given less weight.

This concern is explained in a recent speech by Andrew Reeves, chair of the AER:

“There is a clear incentive for the business to submit proposals that are either at or beyond the upper end of the range of reasonable estimates since the regulator is obliged to accept a reasonable estimate. As you would expect, the proposals include copious amounts of detail, and substantial engineering justification. Since the rules require that the regulator’s response be based on the original proposal, the regulator must engage in a careful forensic examination of the myriad of detailed workings to be able to amend the forecast. Further, the regulator can only amend the proposal to bring it back into a range of what could be considered to ‘reasonably reflect’ a forecast of efficient costs. These factors, put together, mean that the regulator can only make adjustments at the margin, i.e., can only amend those details which are excessive to a reasonable estimate of that particular detail …

The inevitable consequence is an outcome that is not a central estimate of efficient costs, or even one which would conservatively provide ‘at least’ efficient costs, but one which is biased in favour of the service provider and can lead to excessive payment by users.”

2.1.3. Do government-owned firms have an incentive to inflate their regulatory asset base?

Under current regulatory policy settings, government-owned firms are treated in the same manner as privately owned firms. One of the implications of this policy is that both government and private firms are allowed a conventional commercial cost of capital. However, in practice, government-owned firms may have a lower cost of capital for two reasons — first, these firms often benefit from an implicit or explicit government guarantee, allowing them to borrow funds at a lower rate than private firms. Second, since governments collect corporate taxes, government-owned firms in effect pay all of their earnings to their owners whereas privately-owned firms usually pay some corporate taxes, reducing their after-tax earnings.

It is well-known that if a regulator over-estimates the cost of capital of a firm, other things equal that firm has an incentive to inflate its regulatory asset base. If government-owned firms in practice have a lower cost of capital than privately-owned firms, the policy of allowing these firms the same regulatory cost of capital may induce the government-owned firms to inflate their regulatory asset base. This effect is in addition to the problem that due to weaker corporate governance pressures, government-owned firms may not have the same incentives to pursue efficiency.

This problem may be compounded by the fact that the existence of an arms-length regulatory regime allows governments to distance themselves from responsibility for pricing. The separation of price regulation from ownership may allow some governments to deflect the blame for price increases to the regulatory authority. At the same time the government owners have an incentive to use whatever power or influence they might have to either change the rules to justify the

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22 Reeves (2011), page 5.

23 The justification for this is to ensure ‘competitive neutrality’ — although this strictly doesn’t apply to electricity networks since these are monopoly businesses which do not face competition.

24 Dividend imputation reduces the effect of corporate taxes. A wholly-Australian-owned firm would also, in effect, pay no corporate taxes provided imputation credits had their full value in the hands of the shareholders. However, the usual assumption is that imputation credits are not valued at their full value (i.e., the ‘gamma’ parameter is less than one).
additional expenditure (the Energy Users Association of Australia (EUAA) expresses particular concern about manipulation of jurisdictional reliability standards\textsuperscript{25}) or to weaken or loosen the scrutiny of the regulatory regime over that expenditure.\textsuperscript{26}

There are explicit mechanisms in place which seek to make transparent the benefits that government owned firms might enjoy through lower borrowing costs. At the Commonwealth level, the competitive neutrality guidelines for managers of government owned firms state that ‘significant business activities that receive a cost advantage in borrowing as a result of government ownership need to make a debt neutrality payment to the Official Public Account’.\textsuperscript{27}

However, from the perspective of the government owner, it makes no difference whether the payments it receives are in the form of dividends, taxes, or debt neutrality payments, since all such flows of funds end up in the same government account in the end. As a result, despite the existence of debt neutrality payments the government owner retains the incentive to induce the firm to behave as though its cost of capital is its true (lower) cost of capital.

The financial incentives to inflate the size of the regulatory asset base may not be minor. According to Chester (2007), the NSW electricity companies collectively contributed 5 per cent of annual NSW Government revenue. This point is made by Mountain and Littlechild (2010):

‘The target rate of return in the public sector is typically less than in the private sector. In the case of the NSW distributors, the target rate of return on assets, as set by the NSW State Government, is 6.8% nominal. The AER is required to calculate the allowed rate of return on the assumption that all businesses are privately owned. Its vanilla rate of about 7.5% real is presently around 10% nominal, half as high again as the hurdle rate the NSW Government has set for these businesses. In addition, the AER is required to set the rate of return after accounting for tax at the corporate rate. In the case of private companies the Commonwealth Government receives the proceeds of this tax, but the NSW Government receives tax equivalent payments from the distributors it owns. The effect of these provisions is at least twofold. First, an allowed return that is above the companies’ target rate of return makes capital expenditure in the NSW distribution networks particularly attractive to the distribution companies and to the NSW Government as the owner of these companies. Second, higher revenues and tax equivalent payments are particularly attractive to the NSW Government.’\textsuperscript{28}

\textsuperscript{25} Jurisdictional governments specify the reliability standards that the Transmission Network Service Providers (TNSPs) operating in their jurisdiction are required to satisfy. Through this, jurisdictional governments are able to significantly affect the capital expenditure requirements of their TNSPs. We are concerned that the decision that jurisdictional governments make on reliability obligations could be coloured by their desire for financial returns from TNSPs (regulated returns are proportional to the asset base and so encourage governments that profit from these businesses to look for ways to expand the asset base’). EUAA (2010), page 6.

\textsuperscript{26} There is some dispute over the extent to which state governments can distance themselves from pricing decisions. On the one hand, the government might seek to make submissions or public statements, making clear their apparent impotence on pricing matters. At the agency level, state government agencies might seek to refer all complaints on pricing to the regulator. On the other hand, voters and the media might blame state governments for price rises in any case, on the basis that they either have, or should have, the power to do something about them. On 8 October 2010, the Daily Telegraph kicked off a campaign against higher power prices with a front page editorial directed at the NSW Premier under the headline: ‘You have the Power: Act on bills, Premier’. In the context of the water sector, government pricing policies (such as inclining block tariffs) have a big influence on regulatory outcomes.

\textsuperscript{27} Treasury (2004), page 23.

\textsuperscript{28} Mountain and Littlechild (2010), page 9.
Mountain and Littlechild (2010) go on to argue that the difference in the behaviour of privately-owned distributors in the UK and the government-owned distributors in NSW is striking. They observe that in the period 2000–2005 distributors in the UK underspent their capex allowance by 34 per cent. In contrast in the period 1999–2004, NSW distributors overspent their capex allowance by 50 per cent.29 The EUAA notes that, over the last decade, the regulated value of the (privately owned) TNSP assets in Victoria have grown by 40 per cent while the (government owned) asset base in New South Wales has grown 160 per cent.30 Similar growth in the asset base has been seen in Queensland. Back in 2005, the Exports and Infrastructure Task Force expressed similar concerns:

‘[D]ire [ct] government ownership of infrastructure assets can undermine the independence and transparency of the regulatory process, enmeshing government in a conflict of interest between its role as regulator and its position as asset owner. … [T]he taskforce was advised of cases where state regulatory decisions have inhibited or blocked possible competition from the private sector, to the benefit of government-owned enterprises. It was suggested that governments, where they are asset owners, are being placed in a conflict of interest situation, particularly where the revenue generated supports the government’s taxation base or other social objectives.’31

2.1.4. **Do the appeals processes in the energy sector permit cherry-picking by the regulated firms?**

Under the current electricity rules, individual elements of regulatory determinations may be appealed to the Australian Competition Tribunal for reassessment on their merits. In practice, these appeals have only been taken by the regulated firms themselves. If the firms are successful in their appeal they are usually able to increase their allowed prices. If they are unsuccessful, the decision of the AER stands (the cost to the regulated firm is only the litigation costs). Given the large amounts of revenue at stake relative to the costs of litigation, this policy has created incentives for regulated firms to use the appeals process to shift regulatory decisions further in their favour. In fact, virtually all of the transmission and distribution regulatory decisions of the AER have been subject to appeal by the regulated firms to the Competition Tribunal.32 This concern over cherry-picking has been emphasised by Mountain and Littlechild (2010):

‘In GB, Ofgem proposes price caps (and associated incentive schemes) that distributors may accept or reject. Ofgem will expect to refer any rejected proposal to the

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29 The observation of over-spend/under-spend relative to the regulatory capex allowance is not, in itself, conclusive evidence of differences in incentives — it could also be due to differences in the setting of the regulatory allowance. In the UK in 2003–2008 the privately-owned gas distributors overspent their capex allowance by 66 per cent. The fact that in 2000–2005 the UK electricity distributors underspent their allowance could be taken as a sign that they successfully ‘gamed’ the regulatory process.

30 EUAA (2010), page 8. There is a secondary effect of this policy of treating government-owned firms in the same manner as privately-owned firms — it creates a situation where these businesses are more valuable in the hands of a state government than in private hands, since the state government can use its control to increase the size of a government owned firm, but it could not do the same for a private firm. In effect, the regulatory policy becomes a barrier to privatisation.

31 E&ITF (2005), page 37.

32 There is an excellent summary of the experience with appeals prior to the establishment of the AER in Lowe and Nelthorpe (2006). They note that the issues with appeals are two-fold: (a) With one exception, where they have applied, consumer representative organizations have been denied standing to appear at the appeals as interested parties or to bring their own appeals; (b) The Appeal Panel considers only those issues identified by the parties bringing the appeal, not the determination as a whole with the result that only those aspects of a determination that are unfavourable to the appellant are likely to be the subject of an appeal’. (page 34).
Competition Commission. The Competition Commission is required to re-open the whole matter and make its own recommendation on all aspects of the price control proposal. Its recommendation may be more or less advantageous than Ofgem's proposal in some or all respects. In some cases it has indeed been less advantageous to the appealing company. … In fact, only one electricity distribution price control proposal has been appealed to the Competition Commission out of some 42 such proposals made to date. … In contrast to GB, a distributor [in Australia] may choose to appeal specified elements of a price control decision. This encourages cherry picking. … In contrast to GB, all three NSW distributors (plus two transmission businesses) appealed elements of recent AER decisions. The ACT agreed with one of the appeals (related to the choice of the averaging period for the risk-free rate in the cost of capital calculation). Its decision increased the WACC [Weighted Average Cost of Capital] by around 180 basis points, which in turn increased allowed revenues by around 8 per cent over the regulatory period.33

Very similar concerns have been expressed by the EUAA:

‘… [T]he appeal mechanism encourages cherry-picking. At worst, if an applicant feels that a decision by the Australian Competition Tribunal is likely to go against it, it is able to withdraw the appeal and the AER’s decision would stand. Network service providers have been able to achieve extraordinary revenue increases as a result of appeals. For example, a recent appeal by distributors in NSW resulted in increases in the allowed revenue of around $2bn over five years. It is particularly concerning that the ACT was not aware of the impact of its decision on allowed revenues before it reached its decision.’34

In principle, the tendency of the existing appeal arrangements to favour the regulated firms would be diminished if customer groups were also active in the appeals process. In practice, consumer groups have not been successful in their attempts to act as applicants or interveners in appeals.35 One possible reason why customer groups have been unable to obtain standing to appeal is that the National Electricity Law requires that applicants demonstrate that there is a ‘serious issue to be heard’ which may result in a revenue change of either $5 million or 2 per cent of the average regulated revenue. This provision effectively requires that the matter in dispute be quantified. But consumer groups may not have the resources to commission studies even to identify the amount in dispute. In a recent case the EUAA sought to appeal the decision of the AER on the grounds that the AER failed to carry out its statutory duty to conduct benchmarking. The Competition Tribunal declined leave to intervene on the basis that the EUAA had not demonstrated that the failure to carry out benchmarking would result in a revenue change in excess of $5 million.36 Customer representative bodies such as the Consumer Utilities Advocacy

33 Mountain and Littlechild (2010), page 6. This concern is also emphasised by Nick Russ (2010).

34 EUAA (2010), page 16. The EUAA also mentions differential incentives to fund appeals: ‘TNSPs have an asymmetric advantage in funding appeals. The cost of the appeal is absorbed by users — unless the AER disallows it in assessing future opex allowances (something the AER has not yet done). By contrast, users face the problem of free-riding which means that even appeals that are likely to benefit all users are difficult to fund.’

35 There is an extended discussion of the attempts of customer groups to acquire standing to appeal regulatory decisions in a paper prepared for the Consumer Utilities Advocacy Centre by Lowe and Nelthorpe (2006).

Centre (CUAC) and Consumer Action Law Centre (CALC) have also been highly critical of the appeal processes in the energy market to date.37

There is a secondary effect of the appeals process which was mentioned earlier. The ability to seek appeal on individual issues limits the ability of the regulator to economise on resources by restricting the time and resources allocated to any one issue. Instead, the regulator is forced to examine each issue and justify its decision in detail whatever its view on the merits of spending those resources. It has been suggested that concerns about appeal risk are one of the primary drivers of the increasing length in regulatory decisions noted above.

Some concerns over the appeals process have also been raised in the UK. There the concern has not been that the appeals process favours the regulated firms (as we have seen, the appeals process in the UK has not allowed cherry-picking and has, on occasion, resulted in a worse outcome for the regulated firm). Rather, the concern has simply been the increased time, uncertainty, and cost consumed in the appeals processes. Ofcom notes that the resource requirements vary from year to year, but in one year over 7000 staff hours were recorded on one appeal alone. Appeals have cost Ofcom over one million pounds per year each year since 2007–08.38 Ofcom has expressed concerns that the appeals process results in regulatory uncertainty and that ‘the burden of repeated appeals diverts resource [sic] from performing their statutory duties and impedes their ability to make timely, effective decisions in the interests of citizens and consumers.’39

2.1.5. Is there a need to expand the role played by customers?

Users and consumers play a relatively limited and ineffectual role in most regulatory processes in Australia. Outside of the standard regulatory consultation processes there are relatively few processes established to determine the views of customers or to facilitate effective critique from customer representatives. Consumer groups are often inadequately skilled or resourced to participate effectively in regulatory processes or in litigation. Steps have been taken to improve the role of customers (for example, through the establishment of the Customer Advocacy Panel which funds advocacy and research projects), but overall the role of customers in regulatory processes remains weak.40

The same concern has arisen in the UK. CEPA’s description of the situation in the UK could equally apply to Australia:

‘Broadly Ofgem’s current approach to engaging with consumers during price control reviews can be described as “Consult and Explain”. …[C]onsumers have an opportunity

37 CALC has argued that appeals processes lack a ‘consumer voice’: ‘We note that in the past consumer representatives have raised concerns that, unlike initial regulatory determination processes that enable all interested stakeholders, including consumers, to participate, it is much more difficult for consumer interests to be represented in formal judicial appeal processes. This latest instance is no exception and again highlights the problems with allowing well resourced business entities to challenge regulator decisions in fora that give them the benefit of a lack of alternative voices.’ (CALC, January 10, 2010). In January 2011 the CALC and the Consumer Utilities Advocacy Centre have applied to the Australian Competition Tribunal for leave to intervene on behalf of consumers in the appeals lodged by Victoria’s five electricity distributors against the AER’s recent price determinations.


40 Furthermore, as discussed above, attempts by consumer groups to participate in appeals processes have almost always failed.
Public Utility Regulation in Australia

to respond to Ofgem’s consultations and Ofgem will generally explain how it has taken account of consumers’ views in its decisions, but there is limited further redress available to consumers if they are dissatisfied with how Ofgem has taken account of their views. A natural consequence of the process … is that Ofgem is required to focus a large proportion of its time and resources on responding to exploring network company submissions. Many efforts have been made to pay more attention to the needs of customers but this does not alter the fundamental point that price controls boil down to a bilateral negotiation between the networks and Ofgem, and that, particularly at the end of a review process, focus is increasingly on “cutting a deal” with the networks.41

Professor Littlechild has articulated concerns with the limited role for consumers as follows:

‘Any utility regulator has to make major decisions on behalf of consumers — for example, with respect to investments to improve service quality — without knowing much about whether those consumers would or would not be willing to pay the cost of making those improvements. … Instead, the regulatory bodies make the decisions about the level and nature of this investment. They are required to promote the interests of customers, and do their best to achieve this. Their consultative processes invite anyone to express an opinion during these reviews. No doubt the regulators take due account of all these views. But … would [customers] make the same decisions themselves? Ultimately, they are not able to do so. Their representatives often end up arguing for higher quality and lower prices, without having to face-up to the trade-off between the two. Customers are effectively deprived of choice, and regulators decide on the basis of limited information.’42

2.1.6. Can we be sure that consumers are receiving value for money?

It is not easy to discern from regulatory decisions and reports whether or not customers are receiving value for money from the regulated firms. Could the same services be provided at a lower cost? Should customers expect to receive a higher level of service given the amount they are paying? Under the current arrangements it is difficult to answer these questions.

In part this is due to the incomplete state of information collection processes and the development of techniques for comparing the performance of firms (also known as benchmarking). This weakness has, to an extent, been recognised for some time. Some information has been collected and efforts are underway to better understand and catalogue the information that is collected. Nevertheless, this remains an under-developed area. Mountain and Littlechild (2010) comment:

‘Benchmarking in Australia has been supported in principle but has become somewhat inconsequential in practice. … The AER has said that it only uses benchmarking to “test its bottom-up detailed conclusions” and not to set (expenditure) allowances, and that while the AER is researching this area, it sees benchmarking only as a “longer term proposition.”43

Benchmarking will never be able to fully account for all of the factors which might legitimately explain differences in the apparent cost of firms. Nevertheless, at the present time it is difficult to assess whether or not consumers in different regions are receiving value for money.

41 CEPA (2009), page 3.
43 Mountain and Littlechild (2010), page 7. See also EUAA (2010), page 16.
A related concern arises with respect to the collection of accounting information. Apparently, a standardised system of accounts for regulated firms has not yet been established. In the electricity sector, firms are allowed to submit their standard (audited) accounts, with no attempt at harmonisation of accounting practices across firms. To date there has been no attempt to compare the expenditure of firms with either their forecasts in the price-setting process, or with each other.

2.1.7. Is the building block model applied in a short-term mechanistic fashion?

One concern that has been raised in the energy sector is that the detailed specification in the rules requires the regulator to adopt a ‘reductionist’ perspective — i.e., a perspective where the total regulatory decision is nothing more than the sum of its separate parts. Specifically, the concern is that the rules require the regulator to focus separately on capex, opex, etc., with little or no view to the overall impact on prices, which are only determined at the end of the process, as a mechanistic consequence of the earlier decisions. This approach is in contrast to a view which places long-term price paths as a central consideration for the regulator, with short-term opex and capex relevant only to the extent that they inform that long-term path.

In practice the focus in regulatory price setting has been exclusively on a single regulatory period (usually five years).\textsuperscript{44} Considerations beyond the next regulatory period are almost always ignored. Even if expenditure requirements might feasibly be forecast further into the future, such forecasts are not carried out. This gives rise to a risk that, to the extent there has been a large change in the cost of new infrastructure assets, the need for major replacement expenditure in the medium term may result in substantial changes in prices. The Reserve Bank has recently warned that ‘consumers face big increases in electricity prices because of chronic under-investment in infrastructure’\textsuperscript{45}. But, ideally, a regulator taking a long-term view would factor in the need for replacement expenditure into the present tariff path so that subsequent increases in replacement expenditure can be accommodated without changes in tariffs.

A related concern is that the handling of risk tends to be unsophisticated and under-developed. Large scale risks (such as the risk of stranding) are essentially ignored. History shows that although monopolies may last for decades or longer, they do not last forever. The monopoly of canals over domestic bulk transport in the UK was eroded by the railways. The dominance of the railways was, in turn, partly eroded by road transport. In telecommunications, the monopoly of the copper local loop is being replaced with a monopoly of fibre-optic cable. In principle, large potential future developments in demand or technology should be taken into account in the regulatory framework. In a few isolated instances there is an attempt to handle certain recognisable risks (such as the start-up or greenfields risk of the National Broadband Network) but these are still handled in a relatively unsophisticated manner.

2.1.8. Is there an end in sight to the intensity of debates over the cost of capital?

Over time, debates over the appropriate cost of capital to use in regulatory processes in Australia have become increasingly narrow and arcane in nature. This problem is compounded by the fact that even where the use of a particular cost-of-capital model has been mandated or agreed, there typically remains a substantial amount of imprecision in estimates of the parameters, leaving substantial scope for dispute. For example, recent debates over the market risk premium (MRP) have focused on whether or not the MRP should be 6 per cent, 6.5 per cent, or some higher value such as 7 per cent or more. Yet, a recent paper by Professor Handley points out that even if we take a 50-year time series of excess returns on Australian stocks, the 95 per cent confidence

\textsuperscript{44} In part, this could be because the regulatory regimes require a focus on just the forthcoming five-year period.

\textsuperscript{45} Cited in the \textit{Australian Financial Review}, 17 December 2010.
interval for the market risk premium is from 0.4 per cent to 12.9 per cent. This degree of imprecision leaves substantial room for argument, which regulated firms and their consultants continue to exploit.

This section has set out eight possible concerns with the existing regulatory frameworks. However, to an extent, we have put the cart before the horse. It is not possible to identify concerns with the existing regime without understanding clearly what those regimes are trying to achieve. Let’s turn now to explore the fundamental rationale for public utility regulation.

3. The rationale for public utility regulation

In any public policy issue, it is fundamentally important to understand the underlying rationale or foundation for government action. Without understanding the underlying problem or ‘market failure’ we have no grounds for assessing whether we are doing a good job, whether we could be doing something better, or whether we should be doing anything at all. It is essential that we have a clear and precise understanding of why public utility regulation exists.46 So, what exactly is the rationale for public utility regulation? What is the problem that public utility regulation is trying to solve?

Perhaps surprisingly, conventional authorities do not have a good answer to these questions. As I argue below, mainstream neoclassical economists have long asserted that they have a theory as to why public utility regulation exists. But, on close examination, this theory doesn’t fit the facts. Other authorities make plausible-sounding statements of the objectives of regulation, but these objectives do not explain why we regulate in the first place. This section looks in detail at the conventional case for public utility regulation before suggesting an alternative, based in the literature on transactions cost economics.

3.1 Preliminary considerations

First, there are some preliminary considerations that are worth noting:

Governments intervene in the economy in a myriad of ways, such as environmental regulation, consumer protection, health and safety regulation, land use regulation, and so on. These interventions all have their own underlying and distinct rationale (which can often be expressed as a form of market failure). Many of these forms of regulation will also be applied in public utility sectors. Some of these forms of regulation are, in fact, enforced by public utility regulators such as the ACCC. But we can distinguish these other forms of regulation from public utility regulation, which is the focus of this paper. Public utility regulation is related to the control of the prices of so-called natural monopoly firms.47

Furthermore, there are forms of price control regulation which can be distinguished from the core public utility problem. One example arises in the case of two-way interconnection of networks. Telecommunications networks typically need to interconnect in order to terminate calls on each others’ networks (in order to provide any-to-any connectivity). Similar two-way interconnection problems can also arise in rail networks or in postal networks. These problems

46 Handley (2011). Furthermore, there is also a degree of uncertainty over the model that should be used to assess the cost of capital in the first place. The Productivity Commission has asserted that ‘there is no single correct method to determine a rate of return’. PC (2004), page 300.


48 Similarly, public utility regulation is often accompanied by apparently non-economic requirements, such as uniform national prices for certain services. However, this is not immediate evidence that the rationale for regulation is to achieve uniform pricing — rather, this requirement could be simply the outcome of the political process once a decision has been made to intervene in the sector.
are fundamentally different from the standard public utility pricing problem (also known as a ‘one-way interconnection’ problem). For the purposes of this paper we can put these special two-way interconnection problems to one side.

Another form of price control arises in competition law when a firm is vertically integrated and competes in both a wholesale and retail market. In this case, a firm which owns a monopoly facility in the wholesale market might seek to restrict competition in a related market by reducing the margin between its retail price and the wholesale price it charges rivals. This may be treated as predatory pricing. Often an ‘imputation test’ is applied — effectively asking: could the incumbent earn sufficient revenue to cover its costs if we impute to its own downstream arm the access price it charges to its rivals? Where a regulator exists, the regulator may be tasked with preventing such forms of pricing through the application of principles relating to imputation tests, predatory pricing, or margin squeeze. But, in all such circumstances the pricing control only seeks to control the margin between the wholesale and the retail price. This task can be distinguished from the core public utility pricing problem — the control of prices of a natural monopoly. Whether we leave the core monopoly services unregulated or tightly regulated we may still wish to enforce rules against predatory pricing or margin squeeze. The control of the margin between wholesale and retail charges is not, for the purposes of this paper, part of the core task of public utility regulation.

Another important point to make is the distinction between a rationale for regulation and an objective of regulation. A rationale for regulation is a reason why if public utility regulation did not exist we would have to invent it. An objective of regulation takes the existence of public utility regulation as given and asks what that regulation should be trying to achieve.

For example, many regulatory regimes have as an objective that the regulated firm covers its costs (i.e., ‘earns a normal return’) in the long run. This is a legitimate objective of regulation, but it cannot be the rationale for the regulation in the first place. Most natural monopolies would have no trouble covering their costs if they were simply left unregulated. Indeed, the concern is often expressed that, if left unregulated, they will earn monopoly rent. Once a decision is made to regulate a firm (that is, to control its prices) there is a risk that the regulation will go too far and will prevent the firm earning a normal return. While ‘ensuring the regulated firm will earn a normal return’ is not a rationale for regulation, it is a legitimate objective for regulation once a decision has been made to regulate. In this section we will be seeking the underlying rationale for regulation — not a statement of what regulation should be trying to achieve once it exists.

Similarly, many regulatory regimes have as an objective that the regulated firm produce efficiently. But most privately owned and unregulated firms in the economy have no difficulty achieving a degree of productive efficiency in the absence of regulation. Normal corporate governance pressures ensure that firms have an incentive to achieve a degree of productive efficiency even when the firm has quite high levels of market power. Once a decision is made to regulate a firm, there is a strong risk that that regulation will dampen incentives for productive efficiency. Ensuring productive efficiency is a legitimate objective for regulation once a decision has been made to regulate; it is not a statement of why we regulate in the first place.

Finally, some might argue that there is simply no single, constant, or consistent rationale for public utility regulation. Instead, it might be argued that there are a number of rationales for regulation, that there is a different rationale for each industry, and/or that the rationale(s) change over time. Alternatively, it might be argued that there is no economic rationale for regulation — that utility regulation is fundamentally political with no underlying economic sense. Or, perhaps, utility regulation is fundamentally about non-economic notions such as fairness — about which economic policy-makers have nothing to say.

49 For this reason, legislative statements of objectives are only of partial use in identifying the underlying rationale for regulation.
To counter these arguments, we may observe that there is substantial consistency in the observed regulatory treatment of public utility industries across time and across countries. Although there are industry variations, there is broad consistency in regulatory practice across a range of natural monopoly industries. This consistency is reflected in textbooks and courses on public utility regulation that are intended to have application across industries and across countries. This consistency of treatment suggests that there is some underlying common rationale for the control of the prices of natural monopolies which, in some way, serves the public interest which we should be able to express as promoting economic welfare over time.

3.2. The neoclassical rationale for public utility regulation

The mainstream neoclassical economic literature is clear: the primary purpose of regulation is to minimise the deadweight loss — the allocative inefficiency that results from pricing above marginal cost. For example, according to the *International Handbook on Economic Regulation*:

‘Elementary neoclassical economic theory shows that a monopoly left to its devices will restrict output and maximize profit by equating marginal revenue and marginal cost. As a result it will normally earn monopoly profit … The consumer will pay a higher price than would be the case in a competitive industry where price is equal to marginal cost. The loss from the reduced output of monopoly is known as the deadweight loss or the welfare loss from monopoly. … Economic theory and practice were both in agreement that action should be taken to reduce this efficiency loss by moving to the competitive benchmark of competition.’

This approach can be found in virtually any mainstream economic textbook and in several reports of the Australian Productivity Commission (PC). For example, in its first review of airport regulation, the PC writes:

‘The prima facie rationale for price regulation of certain airports is their perceived market power — that is, the ability to raise prices above efficient levels — and their perceived incentive to use it … In essence, a firm with market power … will restrict the amount supplied and raise the price in order to increase its profits at the expense of consumers. The source of efficiency loss is the reduction in production and consumption of the good or service below the efficient level — the so-called monopoly deadweight loss.’

The primary problem with this approach to public utility regulation is that regulators do not, in practice, behave as though minimising deadweight loss is their primary concern (or virtually any concern at all). These arguments are based, amongst other things, on the following observations:

Minimising deadweight loss is primarily a matter of ensuring that prices at the margin approximate marginal cost — the overall level of prices is irrelevant. Yet, in practice, regulators seem to be very concerned with price levels.

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51 See, for example, Church and Ware (2000), page 34.
52 See, for example, PC (2002), PC (2006).
54 See Biggar (2009), Biggar (2012).
Deadweight loss can be reduced by allowing various forms of price discrimination. Yet, regulatory regimes seem more concerned about preventing than encouraging price discrimination.

Deadweight loss can be reduced through forms of peak load pricing which recover the fixed costs of providing the network at peak times. Yet, in practice, peak load pricing remains rare.

Minimising deadweight loss requires prices which follow marginal cost, yet, in practice, regulators place a substantial weight on price stability.

Deadweight loss is negligible when the elasticity of demand is very low, suggesting that regulators should ignore monopoly service providers which face a low elasticity of demand. But the reverse seems closer to the case.

### 3.2.1. Regulators seem to care as much, or more, about the level of prices than they do the structure

If regulators were primarily concerned with minimising deadweight loss, they would be primarily concerned with marginal prices (or the structure of prices) and would ignore the overall level of prices (it is only prices at the margin which affect the deadweight loss — the overall level of prices or profitability of the regulated firm is irrelevant). In fact the reverse seems closer to the truth. Regulators do not seem particularly concerned about the structure of prices, but seem to care a lot about the level of prices. In a classic textbook, Bonbright (1988) argues that:

> ‘While most people in the public utility community are aware of and would probably acknowledge the validity of marginal cost pricing many would minimize it in actual ratemaking on grounds of either practicality or a lack of single-mindedness to economic efficiency … It is no secret that ratemaking in the US has historically deviated significantly from the first-best marginal cost ideal.’

A commissioner of the ACCC, in a public hearing before the Productivity Commission, stated this explicitly:

> ‘Marginal revenue equal to marginal cost has nothing to do with what we do. What we do is more akin to an average cost approach …’

Since there is no direct link between the level of profit of a regulated firm and the level of deadweight loss, we should expect that regulators would not be directly concerned with the profit of the regulated firm. Indeed, the primary rationale for using the building block model is to ensure that the level of revenues earned by a regulated firm is equal to its level of expenditure in the long-run. The building block model has nothing to say about the structure of charges and whether or not prices are close to marginal cost. In an industry in which regulated firms can effectively price discriminate, the focus on the building block model makes no sense.

### 3.2.2. Regulators do not, in practice, encourage price discrimination

If regulators were primarily concerned with minimising deadweight loss they would encourage all forms of price discrimination including so-called ‘perfect price discrimination’. Yet, in practice, regulators around the world are commonly required to prevent undue price discrimination.

A common requirement on regulators is that rates be ‘just and not unduly discriminatory’. Perfect price discrimination (to the extent that it is feasible), far from being welcomed by regulators as

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56 PC (2004), transcript page 709.
the solution they require, is more likely to be soundly rejected. The new legislation governing the National Broadband Network explicitly rules out forms of discrimination.57 In a 2002 speech Gary Banks (chair of the Productivity Commission) recognised that regulation tends to prevent rather than encourage price discrimination.58

Rules against price discrimination make no sense if the primary rationale for regulation is the minimisation of deadweight loss.

3.2.3. Peak-load pricing remains the exception rather than the rule

If regulators were primarily concerned with minimising deadweight loss they would seek to ration scarce capacity with prices (peak load pricing). Yet, in practice, peak load pricing has found only limited acceptance amongst regulators. Two distinguished regulatory economists have noted that:

‘Prices differentiated by time of day and day of week have proliferated in telecommunications since the 1960s; however, the methods used to determine peak and off-peak prices owe little to economists’ formulas and more to accountants’ methods in allocating capacity costs. In other areas of public utility application, such as transportation, peak-load pricing has found little application, possibly because of preoccupation with “fairness”.’59

Furthermore, even if rationing by peak-loading pricing is uncommon in practice, rationing through allocation of capacity rights (e.g., ‘slot’ rights at airports) is relatively common and seems to be spreading. This preference for allocation of scarce capacity through capacity rights rather than through the use of prices cannot be explained using the conventional economic theory.

3.2.4. Regulators seem to place substantial weight on price stability

If regulators were primarily concerned with minimising deadweight loss they would ensure that marginal prices were equated with marginal cost at all times. If the marginal cost increases, the marginal price should increase and vice versa. Regulators would have no particular grounds for emphasising price stability. Yet, in practice, regulators seem to place a great deal of weight on price stability. Bonbright (1988), in his list of the primary desirable attributes of good tariffs, highlights:

‘stability and predictability of the rates themselves, with a minimum of unexpected changes seriously adverse to rate-payers and with a sense of historical continuity’.60

In a recent speech, Sibylle Krieger, commercial lawyer and member of IPART describes the price setting process of IPART as follows:

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57 Sections 152AXC and 152AXD of the Telecommunications Legislation Amendment (National Broadband Network Measures — Access Arrangements) Bill 2010 specify that when carrying on a range of listed activities ‘An NBN Corporation must not … discriminate between access seekers’.

58 ‘Ironically, a possible victim of the regulatory response to market power has been to limit the scope for the very feature that reduced the adverse efficiency effects of that power in an unregulated setting — multi-part pricing at the access and retail level. Regulated access prices have generally been uniform and cost-based. Where services use common fixed costs — which is a ubiquitous feature of infrastructure services — the regulator is forced to use arbitrary cost allocation rules, instead of seeking to recover a greater portion of common fixed costs from inelastic demand.’ Banks (2010), page 129.

59 Faulhaber and Baumol (1988).

60 Bonbright (1988), page 387.
IPART balances the need for cost-reflective pricing against the protection of consumers from excessive price shocks. … It balances the need for state utilities to invest in capital expenditure in big lumps against the needs of consumers to have prices glide upwards rather than step upwards.61

In regulators were primarily concerned with minimising deadweight loss, why would IPART be concerned to protect customers from ‘excessive price shocks’, or concerned to ensure prices ‘glide upwards rather than step upwards’? These concerns have no basis in (and indeed could be contrary to) the conventional economic approach with its focus on minimising deadweight loss.

3.2.5. Policy-makers seem to be particularly concerned about industries with low elasticity of demand

If policy-makers were primarily concerned with minimising deadweight loss they would not bother with regulated industries in which the monopoly component was a small component of the final retail cost, on the grounds that the (derived) elasticity of demand for the monopoly services would be small and therefore the deadweight loss insignificant.62

This point was made by the Productivity Commission in arguing that airports should not be regulated — since airport charges represent only a small component of the price of airfares, the elasticity of response of air travel to airport charges is low and therefore the deadweight loss is low. This argument was also made in a 2002 speech by Gary Banks:

‘Even where monopoly power is exercised, it may not have significant negative impacts on efficiency. In particular, to the extent that monopolists can structure their price menus efficiently, so that prices are high for the inelastic segment of demand and low for the elastic segment, there may be little distortion in supply or consumption patterns. For example, in the case of airports, there are numerous examples of airport price structures designed to promote or retain marginal users, including direct incentives designed to encourage additional flights and new entrant airlines. Of course, there may be distributional consequences, but whether these warrant concern is not always straightforward. For example, the losers from higher than necessary airport charges would potentially be passengers paying higher fares and airline shareholders earning lower returns. But the diversity of share ownership in airlines and airports — directly or indirectly through large superannuation funds — and the mix of foreigners and Australian residents amongst shareholders and passengers, mean that any distributional effects may be largely “neutralised”’.63

Despite these observations, around the world, major airports are nearly always regulated or government owned.

This argument applies to an even greater extent to other services such as electricity transmission or gas transmission. Consumers have relatively inelastic demand for electricity. In addition, electricity retail charges are very insensitive to changes in electricity transmission costs. Yet, around the world, electricity transmission is subject to price regulation. Again, we see that the hypothesis that regulation is primarily about the control of deadweight loss does not fit the facts.

We are left with the conclusion that the minimisation of deadweight loss is not the primary concern of public utility regulators. This could be because public utility regulators are simply doing a bad job. Perhaps they are economically ignorant, or are knowingly pursuing policies which do not promote the overall public interest. Neither of these hypotheses is credible. The

61 Krieger (2010).
62 Banks (2010), page 129.
63 PC (2002), page 183.
primary rationale for public policy regulation is apparently not, despite the assertions of neoclassical economists, the minimisation of deadweight loss.

3.3. **Alternative rationales for public utility regulation**

But, what might be the alternative? If utility regulation is not primarily intended to address the problem of deadweight loss, what might it be designed to achieve?

A few other possibilities have been suggested. Perhaps the primary rationale for regulation is to promote productive efficiency. Or perhaps the primary rationale for regulation is to promote competition in a related market. Perhaps the primary rationale for regulation is to redistribute income. Unfortunately, none of these hypotheses stands up to close examination.

3.3.1. **Is the primary rationale for regulation the promotion of productive efficiency?**

Is the primary rationale for regulation to increase productive efficiency? The Productivity Commission (2004) has raised this possibility:

> Businesses with enduring market power might also have less incentive to seek out new ways to improve product and service quality and be innovative in general, preferring instead a “quiet life” by paying less attention to the demands of consumers. These losses are additional to the standard allocative efficiency losses … Regulatory regimes might encourage dynamic efficiency improvements, depending upon their design.64

Whether or not firms in public utility industries have less incentive for efficiency than other firms in the economy depends, in part, on the effectiveness of the normal corporate governance disciplines (that is, the oversight and monitoring by the board combined with the threat of takeover). The shareholders of a public utility firm have as much incentive to see it operated efficiently as shareholders of a competitive firm. So why should we expect any lower levels of efficiency from a public utility firm? One explanation might be a lack of comparators. Perhaps in a competitive industry the shareholders or board of directors are able to compare firms more easily and discern when their own firm is not operating efficiently. Perhaps the lack of comparators of a monopoly firm allows the management of the public utility firm a greater degree of slack.

The problem with this argument is that many public utility firms have many natural comparators. Even if a firm has a local monopoly, there may be a number of equivalent firms operating in equivalent markets in other parts of Australia or around the world. This applies to almost all the regulated firms in Australia — whether it is airports, electricity distribution, transmission, telecommunications, and so on.

If the primary rationale for regulation were to improve productive efficiency where there is a lack of natural comparators, we would expect to see regulation imposed where no natural comparators exist and no regulation where plenty of natural comparators exist. This is not the case. The lack of comparators cannot be the explanation for the existence of regulation.

A further problem with this hypothesis is that most economists argue that public utility regulation hinders rather than improves the incentives for productive efficiency. Banks (2008) notes: ‘Price regulation almost inevitably becomes rate-of-return regulation, which can undermine incentives for productive efficiency and innovation’. If a lack of productive efficiency is the problem, it is not clear that conventional public utility regulation is the solution.

Moreover, this hypothesis doesn’t explain the patterns of regulation that we observe around us. If regulators were primarily concerned about productive efficiency, why do they focus so much

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64 PC (2004), page 88.
effort on setting prices? The level of prices would be almost irrelevant to the achievement of efficiency. Moreover, if productive efficiency were the core concern, why would regulators focus so much on ensuring ‘cost-based’ or ‘cost-reflective’ prices? Linking prices closely to observed costs tends to lead to rate-of-return rather than price-cap regulation. Rate of return regulation tends to undermine rather than enhance incentives for productive efficiency. The promotion of productive efficiency cannot be the primary rationale for utility regulation.

3.3.2. Is the primary rationale for regulation the promotion of competition?

In Australia, the relevant legislation often mentions the promotion of competition as a possible objective. Is the primary reason for regulation the promotion of competition?

The competition to be promoted cannot be in the market for the core public utility services themselves. Public utility regulation is, by design, focused on sectors which cannot sustain competition. If there is any effect on competition at all, it must be in neighbouring (upstream or downstream) sectors. But under the neoclassical approach, tariff control in one sector only has an indirect or secondary effect on competition in another sector. Competition between airlines, for example, is not greatly affected by the level of airport charges. Competition between electricity retailers is almost entirely independent of the level of distribution and transmission tariffs. If the promotion of competition was the aim, policy makers would focus on structural separation and non-discrimination rather than tariff regulation.

As noted earlier, in the special case of a vertically-integrated natural monopoly, the level of competition in the related sector is strongly affected by the margin between the incumbent’s retail and wholesale price. If competition is to be promoted it is essential that this margin be maintained at a level where an equally-efficient rival can survive. This can be achieved through the enforcement of predatory pricing laws, or through an imputation test, or both. In some cases the enforcement of this margin between retail and wholesale prices is given to a sectoral regulator (rather than a competition authority).

But the promotion of competition in a neighbouring market cannot be the primary rationale for the existence of regulation in the first place. The most obvious problem is that competition issues of this kind only arise in industries where the monopoly service provider is vertically integrated (or would like to become so). Yet, public utility regulation has existed for decades in sectors which are not vertically integrated. For example, in Australia, airports were (in the past) subject to a form of price control even though there have long been statutory barriers to vertical integration between airlines and airports.

Even if we focus exclusively on industries which are vertically integrated, if the promotion of competition were the primary rationale for regulation we would observe regulators focusing exclusively on the margin between wholesale and retail charges, and imposing rules which regulate that margin such as the Efficient Component Pricing Rule. Instead we observe regulators insisting on cost-based or cost-reflective tariffs. We are forced to conclude that the promotion of competition cannot be the central rationale for public utility regulation.

3.3.3. Is the primary rationale for regulation the redistribution of income?

Perhaps public utility regulation only exists to redistribute income from sellers to buyers. Perhaps the redistributive effects of monopoly pricing are of concern to the community and that regulators should not be dismissive of these concerns.

But this raises several questions: Why is it more politically sensitive to redistribute income in public utility sectors rather than other sectors? Are airport charges more politically sensitive than, say, grocery prices? Yet, around the world, airport charges are usually regulated while grocery prices are usually not. In the case where the regulated firm has a widely dispersed shareholding, shareholding customers should recognise that regulation helps their interests as customers, but hurts their interests as shareholders. If regulation were primarily about redistributing income to
consumers we might expect to see less regulation of firms which have a widely dispersed shareholding, but this doesn’t seem to be the case.

In any case, it is not clear that redistributing wealth through price control is an efficient way to achieve redistribution. The Productivity Commission argues that it is more efficient to redistribute wealth through the tax and benefit system. Why should an inefficient form of wealth redistribution persist in sectors dominated by public utilities? If consumers are politically a strong and cohesive enough group to achieve lower prices and redistribute wealth, why does this redistribution occur in public utility industries and not in other industries? How can it be that around the world, and over time, the same industries are chosen by politicians to redistribute wealth?

Finally, and perhaps most conclusively, utility regulation is maintained in sectors where there are simply no Australian consumers. Take, for example, the regulation of the coal chain railways in NSW or the declaration of the iron ore railways in the Pilbara. In both cases the final consumers are not Australian citizens. The redistribution of wealth for political reasons cannot explain why we might regulate these monopoly service providers. We are left with the conclusion that public utility regulation cannot be explained merely as a desire to redistribute wealth.

Forsyth (2001) struggles with precisely these issues. He recognises that the minimisation of deadweight loss cannot explain the existence of airport regulation. He goes on to give consideration to the possibility that regulators are pursuing not economic efficiency but distributional objectives: ‘The de facto objective of regulation, in the airport context, is to redistribute income, and more specifically, to keep profits at moderate levels’. But, on further examination, he finds even this conclusion difficult to sustain:

‘Typically in applied welfare analysis, when we talk of a distributional objective, what we have in mind is a situation in which the benefits or costs to one group is given a different weight from that given to another group. … In the airport regulation situation it is not a matter of having some specified distributional trade-offs between the different groups. There is little by way of identifying who the gainers and losers are, and what their circumstances are. Rather, the objective is one of keeping prices close to costs, and one of avoiding supernormal profits. … Thus, the regulatory objective that is applied in practice is not strictly one of achieving some specified distributional effects … Rather it is a simple one of pursuing a pricing rule for its own sake; this rule has distributional implications, though they are not systematic. Regulators and governments may impose this rule for political reasons; it is not a rule which emerges readily from normal applied welfare economics.’

In effect, Forsyth (2001) suggests that there is no economic rationale for the patterns of airport regulation we observe — what we observe is simply a matter of pursuing a pricing rule for its own sake. This is a pessimistic conclusion.

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65 ‘The [Productivity] Commission considers … that using access regulation to redistribute income would be inefficient. Other policies generally target income distribution more effectively and efficiently.’ PC (2004), page 90.

66 It has also been suggested to me that regulation is necessary to prevent inefficient duplication of natural monopoly facilities. The problem with this argument is that a rational, unregulated monopoly firm would never allow its facilities to be duplicated as long as it has sufficient capacity (as long as it can price discriminate it can always offer capacity on its facility at a lower charge than it would cost a rival to duplicate). If we remained concerned about inefficient duplication, this could be resolved through granting each natural monopoly an exclusive geographic franchise. There is no need to control tariffs to prevent inefficient duplication of natural monopoly facilities.

67 Forsyth (2001), page 10, emphasis added.
3.3.4. Conclusion

We are forced to conclude that the standard rationales for public utility regulation that are conventionally offered are inadequate. Economists have for many years argued that the primary economic rationale for public utility regulation is the reduction of the harm known as deadweight loss. On closer inspection, however, this turns out to be unsatisfactory. Despite the exhortations by economists, regulators and regulatory policy-makers have systematically ignored or downplayed this rationale in practice. There must be some other explanation for why we regulate public utilities. The other suggestions — that we regulate to promote productive efficiency or to promote competition — are either irrelevant or even less plausible. The hypothesis that regulation is primarily designed to redistribute wealth doesn’t fit the facts.

Non-economists suggest that we regulate to give consumers a ‘fair go’ or to offset their ‘unequal bargaining power’. In my view, these concerns are valid, but lack an economic foundation. What might be that foundation?

3.4. The sunk investment approach to public utility regulation

In my opinion there is a credible alternative economic rationale for public utility regulation. 68 This alternative approach argues that the primary economic rationale for public utility regulation is the protection of the sunk (relationship-specific) investment of customers of the regulated firm.

3.4.1. Description of the sunk investment approach

The basic story is as follows:

Customers of a service provider must typically make a sunk investment whose value is dependent on continuing to receive supply of the service in question. These sunk investments typically take one of the following forms:

1. customer-specific investments, such as electric wiring and electric appliances to make use of electricity services, gas pipes and gas-consuming appliances, telecommunications cables and telecommunications appliances, and so on;

2. location-specific investments, such as the choice of location for a warehouse, factory or home close to a service provider so as to extract the most value; or

3. human-capital-specific investments, such as investment in learning how to make use of the service, or making investments in innovation which make use of the service. 69

Once these investments have been sunk, their value is dependent on continuing to receive a supply of the service at a reasonable price and quality. As is well-known from the literature on transactions costs economics, such relationship-specific investments are subject to the threat of ‘hold-up’. That is, once the sunk investment has been made, there is a risk that the service provider will attempt to expropriate the value of that investment by raising the price (and/or reducing the quality or availability of the service). In the absence of any protection for these sunk

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68 See Biggar (2009), Biggar (2012).

69 These sunk investments are present for both competitive and monopoly service providers. However, in the case of a competitive market, even if these investments are specific to a particular service, they are not specific to a particular supplier. In the event that any one service provider attempts to raise the price or restrict the supply, customers can switch suppliers, preserving the value of their sunk investment. However, in the case of a monopoly service, the value of the sunk investment depends on continuing to receive supplies from a single service provider. In this sense the sunk investment of consumers is relationship-specific.
investments, the customer will be reluctant to make the necessary investments or will invest in imperfect alternatives, resulting in a loss of overall economic value.

Both the service provider and its customers recognise this risk of hold-up and the risk that, in the absence of protection, the customer will not want to rely on the monopoly service. Both parties therefore seek mechanisms which can provide some protection for the sunk investment of the customer. There are two common mechanisms for the protection of such sunk investments: vertical integration and long-term contracts. For example, there may be vertical integration between a natural gas producer and a natural gas pipeline. There may also be long-term contracts between the pipeline and downstream gas consumers. There are both vertical integration and long-term contracts between coal mines and mine-mouth coal-fired power stations.

However, both vertical integration and long-term contracts have their drawbacks. Transaction costs limit the ability to rely on long-term contracts to solve the monopoly problem, particularly when the number of customers is large and not all customers are present at the time of the initial investment. End-users, for example, typically do not seek to enter into a long-term contract with an electricity distribution or transmission business, prior to making a sunk investment in a new city.

In a few industries there is some scope for the hold-up problem to be resolved through vertical integration — but, again, this is difficult when the number of customers is large. In some cases vertical integration is achieved through local co-operatives or clubs. In other cases, the interests of consumers are represented by municipal, state, or central governments.

Government ownership may be viewed as a form of vertical integration which is designed to protect the sunk investments of consumers. Government ownership has a long history and tradition in public utility sectors in Australia and many other countries. However, government ownership has its own drawbacks. Governance arrangements are difficult in government owned firms where the ownership interests are diffuse and there are important objectives besides profit-maximisation. Government owned firms were historically subject to government-imposed limits on borrowing, limiting their ability to access capital markets. Experience shows that, over time, the economic rents received by a government owned service provider become shared between the primary stakeholders — the customers, the workers, and the management of the firm.

In this light, conventional public utility regulation can be viewed as an alternative, transactions-cost minimising, governance mechanism. That regulation is a flexible form of long-term contractual arrangement between the service provider and its customers. The primary purpose of that regulation is the protection and promotion of sunk, complementary investment by customers.

Biggar (2009) refers to this approach as the ‘sunk investment hypothesis’. According to the sunk investment hypothesis, public utility regulation is an alternative form of long-term contractual arrangement between the service provider and its customers. Public utility regulation provides the assurances that the parties need to make sunk relationship-specific investment, while allowing the flexibility to adapt to changing market circumstances over time.

This approach to public utility regulation can be traced back to two papers that appeared in the 1970s (Goldberg 1976, Williamson 1976). It is also emphasised in Crocker and Masten (1996) and the 2003 textbook by Gómez-Ibañez, amongst others. Meyer and Tye (1988) emphasise the importance of sunk investments by buyers in the context of the transition to deregulation.70

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70 ‘In essence, when vertically related firms sink costs into specialized investments that are idiosyncratic to the relationship, the resulting quasi-rents can be appropriable by opportunistic behaviour designed to change the income shares specified by the original terms of the relationship’. Meyer and Tye (1988), page 287.
3.4.2. Predictions of the sunk investment approach to regulation

Can this approach explain the key features of regulation that we observe in practice? Biggar (2009) argues that this approach can explain:

- the observed focus on promoting price stability (or at least predictability) for customers;
- the aversion to forms of price discrimination including Ramsey pricing;
- the focus on cost allocation and cost reflectivity;
- the regulatory focus on incremental cost as a basis for pricing.

We saw in section 3.2.4 above that historically regulators have placed significant weight on promoting price stability. This makes little sense where the primary objective of regulation is the reduction of deadweight loss. However, promoting price stability could be expected to be a core component of a contractual arrangement designed to encourage sunk investment by customers.

Customers choosing whether or not to make a sunk investment want some assurance as to the future path of prices for the monopoly service over the life of their investment. They therefore desire some predictability and stability in future prices. We would therefore expect that the regulatory contract would include some form of assurance to customers as to the long-term path of prices, consistent with what we observe in practice.

Furthermore, since it is only ex post price rises which threaten to reduce the value of their investment, we would predict that regulators would care more about price increases than price decreases, again consistent with what we observe in practice.

We can make similar comments about the tendency of regulators to avoid certain forms of price discrimination. We saw in section 3.2.2 above that regulators do not in practice promote price discrimination, even where doing so would reduce the deadweight loss.

Some constraints on price discrimination make sense in a world in which the primary focus is on protecting the sunk investments of customers. Customers making a sunk investment want some assurance that their prices will not go up simply because they have made that investment. But many forms of price discrimination will seek to charge higher prices precisely to those customers who have made a larger investment (and therefore are more reliant on the monopoly service). So-called ‘perfect price discrimination’ perfectly expropriates any value the customer receives from the sunk investment. Many other forms of price discrimination (such as Ramsey pricing) would impose higher prices on customers who have made a larger sunk investment (increasing their demand and reducing their elasticity of demand for the monopoly service).

For this reason we would expect (and observe) that regulators are reluctant to pursue many forms of price discrimination. This observation was made, for example, by Laffont and Tirole (2000):

‘Suppose that an aluminum producer builds a plant planning to use electricity rather than an alternative source of energy. Once the plant is built, the power utility can demand a very high price. Indeed, ex post Ramsey pricing implies that the utility fully extracts the aluminum producer’s profit (gross of the investment cost which is then sunk anyway). Anticipating this “special deal” and knowing that it will lose the investment cost, the aluminum producer ex ante either does not build the plant or else selects its location and technology to fit a different source of energy, even though electricity may be the most cost-effective energy input.’

Meyer and Tye (1988), page 287, also observe that Ramsey pricing could be inconsistent with the protection of sunk investments.
We saw in section 3.2.1 above that regulators seem to focus more on the level of charges than they do on the structure of charges. Specifically, regulators are typically very concerned to ensure that charges are cost-reflective or cost-based, and that regulated firms earn no economic rent in the long-run.

This approach is consistent with reproducing a long-term contract between the service provider and the customer which is entered into prior to either side making a sunk investment. If the customers and the monopoly service provider could enter into a long-term contract prior to either side making any sunk investment, we would expect that one of the features of that long-term contract would be a path of prices that allows the service provider to cover its costs in the long run and which broadly reflects changes in those costs over time. It is not surprising, therefore, that we see regulators focusing on ensuring that prices reflect long-term costs, and using mechanisms such as the building block model, to achieve this outcome.

A similar argument applies to cost allocation mechanisms. Cost allocation mechanisms have been highly criticised by economists in the past\(^{72}\), yet they persist in regulatory practice. Regulatory contracts tend to be very long-lived. Costs may change over time. The regulatory contract must allow tariffs to adapt to changes in costs in a predictable way. A cost-allocation device can be seen as a tool for allowing changes in costs to be reflected in changes in tariffs in a consistent manner over time. If we view utility regulation as a form of long-term contract it is not surprising to see regulators focus on establishing and maintaining cost allocation mechanisms.

A similar argument applies to the use of incremental cost as a basis for regulatory pricing. If the purpose of regulation were (as economists insist) the elimination of deadweight loss, a focus on incremental cost as the basis for pricing makes little sense. As we observed above, standard neoclassical economic theory makes clear that the basis for pricing should be marginal cost. Efficient tariffs under the neoclassical theory (including Ramsey prices) need bear no particular relationship to incremental cost.

However, insisting that tariffs cover incremental cost plays a useful role under the sunk investment approach. Pricing at or above incremental cost ensures that the revenue from any new service or new investment covers the incremental cost of providing that service or investment. This allows the monopoly service provider to make a credible commitment that any expansion in the range or scope of services will not increase costs to the existing customers — thereby enabling the service provider to make the credible commitment to price stability that customers require.

As we saw in section 3.2.3 above, despite the fact that, under the conventional theory grandfathered capacity rights and peak-load pricing are both equivalent ways of rationing access to scarce capacity, peak load pricing is the exception rather than the rule. Both peak load pricing and granting tradable capacity rights ensure that the customers of the service provider face the full marginal cost of their consumption decisions at the margin. In practice, however, capacity rights (such as slot rights at congested airports) are used far more commonly than peak load pricing.

This distinction makes sense in the context of protection of sunk investment. Peak load pricing threatens to reduce the value of any sunk investment made, particularly by those customers who are not able to switch their consumption to other times. In contrast, grandfathering capacity rights preserves the value of the sunk investment to all customers — since existing customers can either choose to use the capacity right or sell it to someone else. Since capacity rights protect the sunk investment of customers, we might predict (as we observe) that capacity rights would be a preferred method of allocating scarce capacity in practice.

\(^{72}\) See, for example, Baumol, Koehn and Willig (1987).
This summary shows that the ‘sunk investment hypothesis’ appears to explain the key features of regulatory practice that we observe. I suggest that the primary economic rationale for public utility regulation is the protection and promotion of sunk (relationship specific) investment by customers.
4. Public utility regulation as a form of long-term contract

The previous section argued that public utility regulation is best viewed as a form of long-term contract between the monopoly service provider and its customers. The long-term regulatory contract is a transactions-cost-minimising governance mechanism designed to protect and promote sunk investment by both the service provider and its customers.

But what, exactly, are the key features of long-term contracts? How does utility regulation differ from long-term private contracts? How does utility regulation differ from other long-term contracts in the public sector?

4.1. The fundamental tension in long-term contracts

Can we make any general statements about the characteristics of long-term contracts? According to the theoretical literature, a key characteristic of long-term contracts is the tension between the need for sufficient prescription to provide assurances on which the parties can rely for their sunk investments, on the one hand, and the need for flexibility to adapt to changing market conditions on the other.

An ordinary (short-term) contract will typically specify the services to be provided, the payments to be made, and the actions to be taken in the event of different contingencies arising. It may also specify a dispute resolution process which can be invoked in the event of a dispute.

In a similar way, a long-term contract might also specify the services to be provided and the terms and conditions of supply, and so on. However, over the life of a long-term contract (which may be for 50 years or more) there may arise substantial variation in market conditions — in the demand for the services, the range of services to be delivered, changes in costs and technology, and the need for major new investment. A long-term contract must incorporate the flexibility to adapt to these changes over time. Stern (2009) notes:

‘Long-term private contracts typically have review and modification procedures built into them. Besides annual review and updating, as in “open-book” contracting, these frequently include clauses that allow for arbitration, involvement of external experts etc. In the resource industry, contracts between multi-national oil, gas and mining companies with national governments typically include binding arbitration in a neutral venue such as Geneva, London or New York under internationally agreed arbitration rules and procedures. This is a weak form of “regulation” in that it involves an external agency to resolve contractual disputes but does not allow for regulatory involvement beyond dispute resolution.’

The key problem is that allowing a degree of flexibility ex post also re-opens the potential for hold-up, as one of the parties to the contract might seek to use that flexibility to shift the terms and conditions of the contract in its favour. In every long-term contract there is a tension between the need for ex ante prescription to control the hold-up problem and the need for ex post flexibility to allow adaptation to changing market conditions over time.

The severity of this tension depends critically on the level of uncertainty in the environment and the length of the contract. In the case of an industry with a stable technology, stable demand, little chance of development of substitutes, and a fixed life of 15–20 years, say, it may be possible to use a long-term contract which is relatively mechanicistic — by, say, specifying mechanicistic

73 Stern (2009), page 2.

74 ‘An important trade-off between the benefits from contractual protection and predictability and the costs of contractual rigidity is … present in any long-term transaction and is inevitable’. Iossa, Spagnolo and Vellez (2007), page 58.
adjustments to the terms and conditions over time. For example, some long-term contracts for toll roads specify a fixed price with only a simple, prescriptive adjustment to reflect, say, increases in the CPI. However, the greater the level of uncertainty about future traffic flows or the longer the duration of the contract the more likely are toll road contracts to allow for future flexibility.

In a context where both parties must make sunk long-lived or overlapping investments in relationship-specific assets, the parties must commit themselves to a long-lived arrangement. That arrangement must provide the assurances that the parties need in order to protect their investment. At the same time, where there is uncertainty about the future, that arrangement must be flexible enough to allow adaptation to changing market conditions over time.

How can a long-term arrangement both provide the assurances that the parties need to make investments while preserving flexibility to adapt to changing circumstances over time? This can, in part, be achieved through careful design of the dispute resolution mechanism. Specifically, the establishment of a permanent dispute resolution body allows that body to both (a) establish principles and policies which it maintains over time; while (b) allowing relatively straightforward adaptation to changing market conditions over time:

‘[T]he design of the dispute resolution mechanism is a key issue for the success of the contractual relationship, especially given the need to avoid costly service disruptions and the long-term nature of most PPP contracts. There have been instances (e.g., the PPP Arbiter for the London Underground PPP) where it has been viewed as advisable to set up a permanent office, independent of the contracting parties, that has the authority to deal with contractual disputes between the parties in the contract.’

‘For infrastructure concession contracts, one frequently finds — particularly in developing countries — that governments establish semi-independent or independent monitoring and enforcement agencies for concession contracts. Some of these agencies also have the power to review and, in particular, to modify these contracts following a review instituted by buyer or seller. At this point, the concession contract monitoring agency (or specialist court) is at least as much of a regulator as the PPP Arbiter and arguably not very different in its core responsibilities from Ofwat or Ofgem.’

In summary, the protection of long-lived sunk investments requires both the assurance of clear contractual obligations and the flexibility to adjust to changing market conditions over time. These conflicting objectives can be simultaneously addressed in part through the establishment of a permanent institution or authority which can establish policies and adjust those policies over time. Public utility regulation is a form of long-term contract in which there is an institution, known as a regulator, which plays that role.

4.2. Long-term contracts and the history of utility regulation

This view of public utility regulation as a form of long-term contract gains further support when we look at the early history of public policy towards monopoly industries. In the US, early attempts at regulating local monopolies through explicit contracts eventually gave way to a system of independent oversight of terms and conditions which we now call public utility regulation.

73 Alternatively, a prescriptive contract might allow for adjustments to reflect changes in an index of wage rates or certain input costs.

74 Athias and Saussier (2005).


78 Stern (2009), page 3.
As appendix A highlights, the tariffs of the earliest monopoly service providers were controlled through explicit long-term contracts known as ‘franchise contracts’:

“The system of municipal regulation by franchise … suffered many problems. … There is substantial evidence of persistent difficulties relating to specifying the franchise contract, adapting it over time to new conditions, and monitoring compliance with the contract for the benefit of the citizenry. These various problems closely resemble now well appreciated problems in the execution of long-term contracts for the supply of a product or service, except that for municipal utilities, they appear more difficult since municipal franchise contracts incorporated more diverse sets of services and, for reasons to be explained, extended for longer terms than typical long-term contracts in modern commercial settings.

… In response to these many problems, as city governments gained experience in administering utility franchises, municipalities amended franchise contract design and administration in systematic ways. Although initial franchise agreements often defined performance requirements with broad and general standards, later contracts incorporated provisions that were increasingly detailed, seeking greater benefit to the citizenry through more complete specification of the price structure and of service requirements. More precise specification of terms, however, created a different set of difficulties. And over time, franchise contracts were amended further to be made more flexible, frequently defining requirements again in terms of general standards, but now to be administered in their details by council subcommittees or boards of arbitrators.

Though implemented by means of contract, this method of control begins to resemble the operation of a regulatory commission. Indeed, … the adoption of regulation by commission cannot be claimed to differ qualitatively from the regulation by city council or, often, by specialized committee that preceded it in many jurisdictions.”

By the early 1920s most states in the US had adopted regulation by public utility commission as we would recognise it today. A similar point is made by Stern (2009):

‘US electricity and other franchise contracts often made explicit provision for renegotiation in response to changes in circumstances, subject to arbitration or reference to an independent committee. These independent committees, which developed from around 1910, could take responsibility for monitoring service quality. These arbitration or review committees gradually evolved in the 1920s and 30s into state Public Utility Commissions.’

4.3. The role of the regulator in the regulatory contract

The discussion above clarifies the role of the regulatory authority in the context of the long-term regulatory contract: a permanent institution, through the development of precedents and policies, ‘fills in the gaps’ left in the broad regulatory contract — allowing for consistent and predictable dispute resolution over time (thereby promoting sunk investment) while allowing the regulatory contract to be relatively flexible, allowing adjustment to market developments over time.

This discussion suggests the following four primary roles of a public utility regulator within the context of the long-term regulatory contract:

a) The dispute resolution role. A public utility regulator should swiftly, objectively and effectively make decisions on matters in dispute between the service provider and its customers, taking into account (i) the regulatory framework (that is, any applicable laws and regulations) and (ii) any policies the regulator has established (such as policies

regarding cost allocation, or long-term price paths) and (iii) any related regulatory decisions (i.e., past precedents). Where there remains residual discretion for the regulator, the public utility regulator should seek to recreate the arrangements that the parties would have agreed if they could have negotiated costlessly prior to making any sunk investment.

b) The policy-making role. Public utility regulators should develop and maintain principles and policies on matters which are not already specified in the regulatory framework. This might include policies on the definition of service quality, policies governing how prices will be determined, policies defining how changes in costs affect changes in tariffs (that is, policies on cost allocation), and policies relating to the provision of information. This policy development process should be (as with all policy development processes) transparent, consultative, and should seek to recreate the arrangements that the parties would have agreed ex ante. These policies should be comprehensive enough that, given a set of public data, the parties can work out the set of prices, terms and conditions the regulator would choose.

c) The information collection role. There is a ‘public good’ aspect to the collection of information. The regulator can facilitate assessment of the performance of the service provider, and facilitate negotiation between the service provider and its customers, by collecting and reporting information relevant to the regulatory contract, such as service quality, quantity, tariffs, and costs (together with input and output measures such as line length, number of substations and so on).

d) The facilitation role. The regulator may be able to facilitate negotiation between the service provider and its customers by setting up regular meetings, identifying issues, and sharing information. Importantly, the regulator can also facilitate agreement by transparency over its likely decisions over the matters most commonly in dispute (such as the likely setting of the regulated tariffs). In other words, the regulator should be able to make clear its likely tariff decision in the light of the available information.

Importantly, in addition to these primary roles, there is a possible additional role which must be carried out by the regulator or some other body. In many public utility industries the customers of the service provider are both numerous and diverse. The interests of the largest electricity consumers, for example, may be quite different from the interests of large or small enterprises, which may be different from the interests of consumers. There is a key role in identifying and representing the interests of customers in the regulatory process. We may call this the ‘customer-representation’ role.

As discussed further below, some states in the US have established a separate institution, the ‘Office of the Consumer Advocate’ specifically tasked with the role of representing consumers before the public utility commission. The box below sets out an extract from the website of the Pennsylvania Office of the Consumer Advocate. In some other states (such as Florida), the Office of the Consumer Advocate is part of the public utility commission itself.

4.4. Should Australian regulators play the role of the consumer advocate or the role of independent arbitrator?

In the Australian context there is a certain lack of clarity as to which institutions should play which role. Is an institution, such as the ACCC, intended to advocate for the interests of consumers, or is it intended to take a neutral, passive, objective role, considering only the information that is put before it?[^80]

[^80]: The Exports and Infrastructure Taskforce raised this issue: ‘Concerns were raised about the conflicting objectives of the ACCC given its dual roles of competition and consumer regulator. A number of parties commented that the consumer protection objective means that too much emphasis is placed on consumer
This question is of fundamental importance because it affects decisions as to the nature of appeals. If an institution such as the ACCC is primarily charged with the customer-representation role, its primary role is *loco emptor* — in the place of the buyer. It should be seeking to negotiate regulatory outcomes on behalf of consumers. In this case, it is reasonable for parties to be able to appeal on the merits of the decision of the ACCC. In this case, the ‘true’ regulatory decision-making role takes place at the next level in the appeal chain (such as the Competition Tribunal). On the other hand, where the institution is primarily charged with the dispute resolution role, its primary role is *loco arbiter* — in the place of the arbitrator. In this case, appeals — as in commercial arbitration — should be limited to questions of law. We discuss further below why appeals from an arbitrator should be limited to questions of law.

Figure 1 shows the case of the regulatory institution as a customer representative, negotiating directly with the regulated firm to come to a regulatory determination. In this case it is appropriate for appeals from the decisions of the institution to be subject to merits review.

Figure 1: Regulatory institution as a consumer representative

![Diagram of Regulatory institution as a consumer representative](image)

In this case appeals from its decisions should be limited to points of law, for several reasons: one reason is that allowing appeals on the merits limits the ability of the parties to design expedited processes for resolving disputes (discussed further below). Another is that allowing appeals on the merits raises the decision-making stage to the next level (the courts or tribunals) which may not have the same degree of industry expertise. Furthermore, since the composition of a court or tribunal may change over time, it may not provide the same degree of certainty or predictability in decision-making as a permanent regulator.

As noted earlier, a dispute resolution mechanism in a long-term contract is intended to allow adjustment of the terms and conditions of the contract in a reasonable manner without

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consuming large amounts of time or resources. In coming to a decision a dispute resolution body may need to consider a large number of individual issues. In order to limit the time and resources consumed in the dispute resolution process, the decision-maker must make a decision as to how many resources to devote to each issue. Some issues will receive substantial time and resources and will receive a detailed examination. Other resources will receive little or no time and resources. If appeal is allowed on the merits of individual issues, the decision-maker will be forced to spend time justifying each and every decision, limiting or preventing the extent to which the decision-maker can make trade-offs between issues to expedite the dispute resolution process. As long as it is desirable to limit the overall time and resources consumed in the dispute resolution process, there will arise a need for a trade-off in the time and resources allocated to different issues. This trade-off will be put under threat by allowing scope for appeal of individual elements of decisions.
The following is an extract from the website of the Pennsylvania Office of the Consumer Advocate:

**The Pennsylvania Office of Consumer Advocate**

**What is the Pennsylvania Office of Consumer Advocate?**

The Office of Consumer Advocate (OCA) is a state agency that represents the interests of Pennsylvania utility consumers before the Pennsylvania Public Utility Commission (PUC), federal regulatory agencies, and state and federal courts. The OCA was created by the Pennsylvania General Assembly in 1976 and is an independent office within the Office of Attorney General.

**The Consumer's Voice in Utility Regulation**

The OCA represents consumers in cases before the PUC involving a wide range of utility issues. These include rate increase cases, purchased gas cost cases, retail competition issues, mergers, and alternative regulation plans. The OCA is involved in rulemakings, policy statements, and state and federal level cases that involve either the price consumers pay for vital utility service or the quality of service they receive. The office uses its resources to help the greatest number of consumers. The OCA generally stresses the interests of residential consumers.

The OCA tries to keep utilities from charging more than they need to provide safe and adequate service to consumers. The OCA can appeal a PUC final decision if it believes the decision is in error and is harmful to consumers. The OCA has filed many appeals from PUC decisions. Some have gone as far as the Pennsylvania and United States Supreme Courts.

**The Consumer's Voice in Utility Competition and Policy Changes**

Laws and policies concerning utility service to consumers are changing rapidly. In the past, most consumers could only choose one company for their electric, telephone or natural gas service. In recent years, both state and federal lawmakers and policymakers have opened many areas of the utility industry to competition. The OCA is the consumer’s voice in these policy debates and in the cases resulting from these policy changes. The OCA’s goal is to have all Pennsylvania consumers benefit from these changes and to make sure that consumers are protected as these changes occur. The office has actively participated in the legislative and policy debates surrounding utility competition and has been involved in cases regarding competition in the electric, natural gas and telecommunications industries in Pennsylvania.

The OCA also helps consumers with utility complaints, and educates consumers through public forums, seminars, community meetings and the media.

Source: [http://www.oca.state.pa.us/information_links/brochure.htm](http://www.oca.state.pa.us/information_links/brochure.htm)
5. Implications for public utility regulation in Australia

The previous section argued that the public utility regulation — like vertical integration and long-term contracting — is a mechanism for protecting and promoting the sunk investments of customers of monopoly service providers. Public utility regulation is useful when transactions costs and other considerations rule out the use of vertical integration (including government ownership) or private long-term contracts. Public utility regulation should seek to re-create the long-term contract that the parties would have written if they could have negotiated ex ante prior to making any sunk investment.

Using this framework we are now in a position to assess and critique the existing regulatory frameworks in Australia and to set out a possible way forward. The approach proposed in the previous section suggests several possible reforms for public utility regulation in Australia:

- Increasing the role played by customers and their representatives in regulatory processes.
- Clarifying the role of the regulator (is the regulator a customer advocate or an independent arbitrator) and the associated grounds for appeal.
- Changes to the status of the proposals of the regulated firm at the time of each regulatory reset.
- Changes in the approach to regulating government-owned businesses.
- Strengthening and clarifying the terms of the regulatory contract.
- Changes in the approach to estimating the cost of capital.

5.1. Enhancing the role for consumers and their representatives.

If (as argued here) the primary objective of public utility regulation is the re-creation of the long-term contract the parties would have negotiated if they could have negotiated costlessly ex ante, then who better to negotiate and agree key regulatory outcomes than the parties themselves? Customers of service providers should be directly involved in negotiating regulatory outcomes.

Instead, as we noted earlier, the involvement of customers in most regulatory processes in Australia is relatively weak and under-developed. Customers do not take direct responsibility for regulatory outcomes. Customers are not directly involved in approving investments or investment-tariff trade-offs, or trade-offs between tariffs and service quality. Customers are not directly involved in the design of incentives, risk-sharing arrangements, or in the design of the regulatory framework itself. There is relatively little scope for customers to enter into new, innovative, or out-of-the-ordinary arrangements with regulated firms — such as special arrangements for the approval of investment, information provision arrangements, complaint-handling procedures, longer-term price paths, and so on.

Professor Stephen Littlechild has been advocating for a larger role for customers in regulatory processes for the past few years. He argues that this would allow customer needs to be better

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81 At first sight it might seem that there is a logical inconsistency here. In the first part of this paper I argued that the conventional deadweight loss hypothesis cannot explain large elements of regulatory practice. In that section we took regulatory practices as the facts to be explained. Now, in this section we are looking at how those regulatory practices should change. These two perspectives are not necessarily inconsistent. In the first section I argued that the set of regulatory practices (broad as it may be) does not intersect with the set of regulatory practices that can be explained as the minimisation of deadweight loss. In this section I argue that the set of desirable regulatory practices is a subset of the set of regulatory practices that we observe. Lacking a solid foundation, regulatory practice has tended to wander around, guided only by intuition. In this section I argue that we can do better.
reflected in regulatory decisions and would result in a more constructive relationship between customers and the regulated firm:

“To the extent that the regulator makes all the major decisions, this displaces and devalues the relationship that would otherwise develop between a utility and its customers. Companies and consumers each find that their ends are more effectively achieved by appealing to the regulator — often using the media — than by talking to each other. In consequence, relationships between utilities and their customers are less satisfactory than they otherwise would or could be. …

The main condition for improved decision-making is that the customer groups should be given greater responsibility. Faced with the costs of their decisions for customers, they can be expected to act as responsibly as regulatory bodies, to negotiate more flexibly, and to make choices with a more informed knowledge and understanding of the needs and preferences of customers. The development of such a practice should lead to more defensible decisions and greater innovation and learning in the sphere of regulation.

There would be a straightforward way to encourage this. The Alberta Energy and Utilities Board has a statutory duty to “recognize or establish rules, practices and procedures that facilitate negotiated settlement”. It would be straightforward to add such a duty to the existing duties of the utility regulators in the UK. It seems eminently consistent with the concept of Better Regulation.”

There is significant scope for improving the role played by customers in regulatory processes in Australia. This could take several forms:

a) The establishment of a formal ongoing consultative group between consumers and regulated firms under which both parties meet regularly (e.g., quarterly) to continually raise and resolve issues that come up, to limit the range of issues that will be decided by the arbitrator/regulator. This group would likely be hosted and chaired by the regulator.

b) The establishment of processes under which consumer groups are primarily responsible for determining in agreement with the regulated firm both the overall regulatory framework and/or, within that context, the periodic updates or adjustments to the contract (also known as regulatory resets). For example, a requirement could be established for service providers to negotiate in good faith and seek the agreement of consumer representatives prior to a proposal coming before the regulator.

c) Where overall agreement between consumers and the regulated firm cannot be reached, so that some form of intervention by the regulator/dispute resolution mechanism is required, nevertheless there may be scope for closer involvement by consumer groups in the regulatory/dispute-resolution process. For example, consumer groups could be involved in, say, approving investments or investment/tariff trade-offs or other major decisions by the regulated firm, in order to limit the scope of elements in dispute to be resolved by the regulator.

d) The creation of a new institution, such as the ‘Office of the Consumer Advocate’ either within or outside the regulator, whose job it is to discern the long-term consumer

82 Littlechild (2008), pages 33, 36.

83 For example, in Germany, in the case of Hamburg Airport, there has been formed a Price Cap Review Board which includes airlines, airline associations and the Airport. ‘This Board meets at least once annually and is in the position to change virtually any of the price cap regulation contract paragraphs’.
interest and then to ensure that that interest is protected in the regulatory process. As already noted, several US states have already created an entity of this kind — occasionally as a division with the Attorney General’s office, sometimes as a division with the public utility commission itself, and sometimes as a stand-alone entity. At the time of the creation of the Essential Services Commission of Victoria, the former Office of the Regulator General argued for the establishment of an independent voice for consumers in Victoria, resulting in the creation of the Consumer Utilities Advocacy Centre.

The precise role for customers in the regulatory process will, to an extent, differ from industry to industry. The role of customers in, say, the regulation of coal railways in the Hunter Valley or the regulation of a natural gas pipeline with one or two large users, will be different from the role of customers in, say, the regulation of airports or the regulation of an electricity distribution business. The precise role for customers will need to be tailored to the specific context.

Some commentators have concerns about the scope for increasing the role for customers in the regulatory process. Given the disparate interests of a large number of customers consuming a large number of services, it may be difficult to effectively aggregate and represent those interests in the regulation process, especially where the value at stake for each customer is relatively small. There remains a risk that small groups of consumers will attempt to hold out for a better deal against the interests of the majority, or that a majority of consumers will attempt to exploit a minority. There is also a concern that customers will be short-sighted, seeking to extract benefits for themselves at the expense of future consumers.

These concerns are real and will need to be carefully addressed. The design of the governance mechanism on the customer advocacy institution will be important. Nevertheless, in my view, there remains significant scope for enhancing the role played by customers in regulatory processes.

5.2. Clarifying the role of the regulator and appeal rights.

As noted above, in the Australian context there is arguably a lack of clarity as to the primary role of the regulator — specifically the question of whether or not the regulator should be representing consumers, or whether the regulator should be a neutral arbiter in the regulatory process. This has been reflected in the different grounds for appeal in different regulatory regimes.

There is value in clarifying the role of the regulator. Specifically, it should be clarified that the primary role of the ACCC and the AER is one of resolving disputes, with appeals only on points of law. The ACCC and the AER, in their role as regulators, should not seek to represent or promote the interests of consumers over any other party. The consumer representation role could be assigned to some other new, or existing, organisation. For example, the consumer representation role (at least for, say, electricity distribution) might be assigned to existing customer representation groups (EUAA, MEU), a new office of consumer advocacy, or some other existing institution.


85 This is also the position of George Yarrow who, in a recent speech, noted: ‘Consumer representation and advocacy functions should be clearly separated from network regulation and competition policy. Utility regulators should not be consumer watchdogs’. Yarrow (2010), page 3.
In principle, it would be possible to make a different choice — specifically, we could assign the ACCC/AER the primary task of representing consumer interests and negotiating regulatory outcomes on their behalf. However, if that approach were taken, the task of regulatory decision-making would be pushed back to the Competition Tribunal. The tribunal would need significantly more resources and would almost certainly need to establish a permanent staff with a policy development and implementation role.86

At the same time as clarifying the role of the regulator and the appeals process, it seems to me that it would make sense to reinforce and clarify the other roles and objectives set out above. Specifically, the following roles should be reinforced:

a) developing regulatory policies within the framework of the regulatory contract governing how the regulator will exercise its discretion (such as policies regarding cost allocation, depreciation, price paths, definition of service quality);

b) collecting and disseminating information which assists all parties to assess the evolution of costs and the extent to which the regulated firm is complying with the regulatory framework (including information relevant for benchmarking and for comparing expenditure)87; and

c) facilitating discussion and agreement between the service provider and its customers. Facilitating agreement is more than simply a matter of creating a forum for discussion and sharing information — in addition the regulator must be clear about its likely decision in the event of a dispute (at least for all likely disputes). This implies, amongst other things, that the regulator must take a view as to what a reasonable set of regulated tariffs would be.

At the same time, it seems that there would be value in clarifying the regulatory objectives. Specifically, the regulator should be required to comply with the regulatory framework of rules, including the policies that it has itself developed, unless it has strong and unforeseeable reasons for departing from those policies. Where the regulator is exercising discretion, it should be required to act in such a way as to re-create the long-term contract that the parties themselves would have negotiated if they could have negotiated costlessly before either had made any sunk investment.

It might be argued that this latter objective is subsumed within the existing objective of promoting the 'long-term interests of end-users'. Promoting the long-term interests of end-users seems to be a plausible and laudable goal. However, there is nevertheless merit in clarifying that the task of the regulator involves the establishment and maintenance of a long-term contract. Would we expect, for example, a toll-road service provider to construct and operate a toll-road with a 50-year life with no other assurances than the promise that the government will at all times seek only to promote the long-term interests of end-users? The answer would seem to be no — a toll-road service provider would typically seek enforceable contractual guarantees.

86 The Competition Commission in the UK has significantly more resources than the Competition Tribunal in Australia and is able to call on secondments of staff from Ofgem as and when the need arises.

87 The Expert Panel spent some time discussing the issues surrounding the information collection role by regulators (chapter 7 of their report). They emphasised: ‘Detailed, accurate information on costs incurred is an essential input into determining efficient regulated tariffs. In the Panel’s view, current powers are inadequate to allow regulators to obtain sufficient information in the format they require, particularly where a significant proportion of services are outsourced. It is essential that regulators have the powers necessary to provide confidence that reported cost information is an accurate reflection of the economic substance of services being provided.’ Page 129.
As another example, consider the following: Over long periods of time, changes in taste or technology can ‘strand’ investments by the monopoly service provider. Is it in the long-term interests of end-users to continue to pay for many years for such stranded investment? Some user groups in Australia have argued that it is not in the long-term interests of end-users to continue to pay for assets stranded by climate change policies. Yet, the regulated firms might argue that if they knew they would face a risk of stranding without compensation they would not have made the investment in the first place. As long as there is any doubt over whether or not it is in the long-term interests of end-users to continue to pay for stranded assets, a reliance only on promoting the long-term interests of end-users may have a chilling effect on investment. Rather than formulate the objective as the promotion of the long-term interests of end-users, it arguably seems preferable to clarify that part of the job of the regulator is to create and then enforce contractual promises.

5.3. Changes to the status of the firm’s proposals at the time of each regulatory reset.

This paper has argued that the regulatory framework (and the regulator within that framework) should seek to re-create the long-term contract that the parties would have negotiated if they could have negotiated costlessly before making any sunk investment. From the perspective of the approach advocated in this paper, the key question to ask is the following: Given the opportunity to negotiate prior to making any sunk investments, would the parties have agreed on the regulatory framework that we currently observe? In particular, would the parties have agreed on the current balance of rights and burden of proof in the existing regulatory regimes?

There are grounds for arguing that the answer is no. Earlier we noted that one concern with the existing arrangements in the electricity sector is that the AER is limited in its discretion as to how far it can depart from the pricing proposal put forward by the regulated firm. The current approach provides relatively little assurance to customers that their tariffs will not go up each regulatory reset due to service providers exploiting the limits of the discretion offered to them, as long as the proposals of the service providers are within a range that could be labelled reasonable.\(^{88}\)

An alternative that could be worth exploring is changing the burden of proof. For example, the burden of proof could be placed on the regulated firm to show that a change in the regulated prices is required (as is the case in the US\(^ {89}\)). Under this approach existing price paths would continue until such time as the firm has the approval of the regulator and customers for a change. As noted above, there could be a requirement for the service provider to negotiate with and obtain the approval of customer representatives before submitting the proposal to the regulator for sign-off.

A change in the burden of proof would both change regulatory outcomes and also change the attitude of the regulated firm towards co-operation with the regulator and with customers. The firm no longer has an incentive to submit ambit claims, act strategically (such as withholding information until the last minute, or deliberately delaying the regulatory proceedings), or otherwise game the regulatory process. Instead the firm would have an incentive to engage in effort to persuade all the relevant parties and to expedite the renegotiation process.

There are some concerns that would need to be addressed. Specifically there are questions about the extent to which sub-groups of consumers could ‘hold up’ the process of agreeing to a new tariff. The regulator would — as always — need to be able to form a view as to the set of tariffs

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\(^{88}\) We saw earlier that this is also the view of the Expert Panel (2006), who argued strongly against the current regime in the National Electricity Rules.

\(^{89}\) Under the classic approach to regulation in the US, the regulated tariffs remain in force until one or other party applies for a change — usually the regulated firm.
it would likely accept as reasonable in any dispute process, and to communicate that to the parties.

5.4. Changes to the handling of government-owned businesses

As we saw earlier, the separation of pricing responsibility from the ownership interest has created a situation where governments can blame others for price rises, while benefitting from higher dividends. This, in itself, would present no greater issues for government-owned firms than for privately-owned firms, except that, to the extent that government-owned businesses have a lower cost of capital than privately-owned firms, regulatory decisions which allow government businesses the higher cost of capital give rise to incentives to inflate the regulatory asset base. There is even a risk that governments, recognising these incentives, might seek to use whatever influence they have to ensure that the regulatory regime is tipped in favour of their government-owned firms.

There are two possible solutions to this problem. One is to change the current regulatory policy and to seek to estimate, as closely as possible, the true cost of capital relevant for each government-owned firm. This would, in principle, eliminate the incentive to inflate the regulatory asset base. It would also reduce the size of the financial penalty associated with privatisation. However, it has the disadvantage that privatisation (that is, a mere change in the ownership of the service provider) could lead to higher tariffs for customers, which seems undesirable. In addition, this approach does not eliminate the incentive on state governments to tilt the regulatory regime in favour of their government-owned firms.

Another possible solution is to shift pricing responsibility back to state governments. Specifically, the final pricing decision could be made by state governments, with the regulator merely playing the roles of information collection, monitoring and enforcement of service quality, and possibly approval of capital expenditure. The final pricing approval, however, would be in the hands of the government-owner.

It may also be desirable to allow a degree of ex post scrutiny of capital expenditure. The Major Energy Users group has criticised the lack of power of the AER to carry out an ex post assessment of capex:

"The Rules … have been made worse by proscribing the ability of the AER from implementing certain critical review functions, which has … resulted in large-scale inefficient investments in networks being approved and incorporated into network costs. These Rules include: removal of the AER’s ability to optimise assets before they are rolled into the RAB; removal of the AER’s ability to undertake ex-post prudency tests of new investments; … automatic roll into the RAB of capex, regardless of whether the investment is inefficient or imprudent."^90

Ex post assessment of capex is tricky and has the risk that it could result in the AER becoming involved in all major capital expenditure decisions. But it may merit further consideration as a tool to control the tendency of government-owned businesses to inflate their regulatory asset base.

5.5. Strengthening and clarifying the regulatory contract.

Earlier we noted concerns that the existing regulatory contract (a) favours the regulated firms, (b) leaves substantial discretion to regulators with relatively little guidance as to how regulators will exercise that discretion, and (c) is rather unsophisticated in its treatment of risk. There is scope for further addressing each of these concerns.

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^90 MEU (2010), page 5.
For example, in terms of regulatory principles (i.e., ‘framework rules’) there is scope for:

a) A greater focus on ensuring price stability. This would require explicitly recognising the potential future changes in the revenue and expenditure of the firm and ‘working backwards’ to determine a long-term stable path of revenue and prices that would allow the firm to break even. This would avoid the problem of ‘price shocks’ due to the failure to anticipate replacement expenditure.91

b) A greater emphasis on principles such as non-discrimination and the absence of cross-subsidisation, and a greater focus on protecting smaller customer groups. In the absence of cost changes no customer should be forced onto a new tariff class that leaves that customer worse off. As noted earlier, the current moratorium on moving to time-of-use tariffs in Victoria is a political response to the legitimate fear that the existing regulatory regime will not protect consumers from potential changes in tariffs.

c) In some sectors (such as telecommunications or rail), there has been scope in the past for periodic revaluation of the regulatory asset base. This has created incentives for service providers to argue for a revaluation and has undermined the assurance to customers that their prices will not be required to increase in the future. The recent move to reliance on the building block model in telecommunications is a step in the right direction. However, there is a need in other industries to ensure that the regulatory asset base will be rolled forward over time.

In addition, there may be scope for further consideration of mechanisms which limit the tendency towards an ‘arms race’ — that is, the tendency for each side to spend increasing resources in regulatory reset processes, but only with the effect of nullifying or neutralising the expenditure of the other. We should ask: In the hypothetical ex ante negotiation, what controls would consumers and service providers place on the time and resources involved in the regulatory reset process and how would those rules be enforced? There may be some scope for streamlining certain regulatory processes with fixed stages of offer, counter-offer, etc. At this stage I only note this as a possibility.

5.6. **Changes in the approach to capital expenditure and the cost of capital.**

Earlier, we argued that the practice of establishing a single regulatory asset base (RAB) for a regulated firm, combined with a single WACC, in a context in which the estimation of WACC is inherently imprecise, has created incentives for regulated firms to invest substantial resources in arguing for small changes in the allowed cost of capital. The larger the RAB of the firm, the more sensitive the firm’s revenue allowance is to even very small variations in the allowed cost of capital. In this circumstance it is not surprising that firms are prepared to incur substantial costs to shift the allowed cost of capital by a few basis points.

As before, we must ask: Is this the arrangement the parties would have agreed to if they negotiated prior to making any sunk investments? It seems plausible that parties entering a long-term contract would recognise the risk of substantial disputation over the allowed cost of capital and would seek ways to minimise that risk while ensuring that needed investments are adequately funded.

What mechanisms might the parties seek to reduce debate over the cost of capital, while still ensuring the regulated firm receives adequate compensation? This is a question which demands further exploration.

91 According to an article in the *Australian Financial Review*, ‘Consumers face big increases in electricity prices because of chronic under-investment in infrastructure, which will add to pressure on inflation and interest rates over the next few years’. Michael Dwyer and Mark Ludlow, 17 December 2010, ‘Electricity prices to surge: RBA’, *Australian Financial Review*, page 8.
One possible approach would involve separating the roles of asset owner and financer from the role of service provider. In principle, assets could be owned and/or financed by customers or groups of customers. For example, groups of airlines could fund certain investments at airports. Groups of end-users could fund expansions of electricity distribution networks. This might require the creation of new entities which are owned by customers (perhaps as co-operatives) which finance new investment. This finance could be backed up through the right to impose a charge on use of the asset, in the same manner as the right to impose a tax. The service provider would use the asset and would provide services, and would have the right to impose its own charge to cover its operating expenditure.

Interestingly, the Utility Regulator for Northern Ireland has recently issued a discussion paper which sets out two proposals closely related to the ideas mentioned above:

‘The possibility that major expansion projects may be split out from existing licensed businesses so that they can be financed and delivered by third parties, [and]

A more radical proposal to split a portion of regulated companies’ RABs into separate companies, to be repaid by customers separately from the funding that they give for the day-to-day operation, maintenance and renewal of the network.’

Another possible approach is to move to a focus on project-based financing rather than firm-based financing. Under this approach, a separate long-term cost of capital would be established for each major project of the firm. This would limit the impact of disputes over the cost of capital to only new investments (rather than the entire regulatory asset base).

Furthermore, it may be possible to tender for certain projects. For example, if there was concern amongst users that the cost of capital required by the service provider was too high, third-party firms could be invited to tender to provide a certain project by specifying, say, the annual revenue requirement they will require (over the pre-determined life of the project) in order to carry out the project. This converts a capital expenditure into a stream of ‘rental’ payments. These rental payments could then be added to the operating expenditure rather than being included in the regulatory asset base. In essence this mechanism uses the tendering process to determine the actual cost of capital relevant for that project. This approach has been used for many years in establishing the relevant payment for new capital projects in the electricity transmission sector in Victoria.

Another way to reduce debate over the cost of capital is to allow consumers to opt to fund certain projects. Under this approach, for any new capital project, if users were not comfortable with the cost of capital demanded by the service provider, they would have the option of funding the project themselves. The idea is that this would provide a check on the ability of the regulated

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92 Utility Regulator (2010), page 5.

93 In comments on this paper it has been suggested to me that increasing the number of regulatory asset bases and WACCs may increase the regulatory burden, spreading out the resources to which the regulator can contest the claims of the regulated firms on any one WACC — in other words, it might make the situation worse, not better.

94 The TNSP in Victoria is SPAusNet. This tendering process was previously carried out by VenCorp (now part of AEMO). This process does not apply to refurbishment and replacement capital expenditure. This approach is also similar to a proposal made by Dieter Helm for a ‘split RAB’ (Helm 2008). In any one year the firm’s actual revenue might be larger or smaller than its total expenditure (including this annualised capital expenditure), so it might need to maintain an ongoing ‘loss capitalisation’ account on which it earns a cost of capital. But this account or regulatory asset base (which is only for the imbalance in revenues versus annualised costs) is likely to be far smaller than a conventional regulatory asset base and therefore there is much less at stake in regard to decisions over the cost of capital.
firm to claim an unacceptably high rate of return, since — in the event that the firm attempted to claim a cost of capital higher than the cost of capital available to the users — the users could simply raise the necessary funds themselves.

6. Conclusions

This paper has several ambitious aims: to critique the existing regulatory frameworks in Australia; to call into question the conventional justifications for public utility regulation; to set out an alternative, consistent perspective; and to apply that perspective to develop a set of consistent reforms for the future of public utility regulation in Australia. To an extent it is not possible to achieve all of these aims in one paper. Further work will be needed to elaborate on the details of these arguments — on the existing set of concerns, on the rationale for regulation, and on the future direction for reform.

Without a clear understanding of what regulation is trying to achieve, we are in no position to critique existing practice or to suggest a different way forward. We might adopt the conventional rationale put forward in economic textbooks — that utility regulation is primarily intended to minimise deadweight loss. However, I have shown that if we were to embrace that rationale wholeheartedly we would be led to take actions quite different to the actions taken by regulators in the past and which would likely be rejected by regulators in the future. I have offered an alternative rationale — that regulation is primarily about protecting and promoting the sunk investments of customers of the service provider. I suggest this alternative, which is based in the literature on transactions cost economics, provides a promising and coherent perspective for moving forwards.

According to this perspective, public utility regulation is primarily about the design and enforcement of a form of long-term contract. Specifically, public utility regulation is about designing the long-term contract that the parties would have negotiated if they could have negotiated costlessly prior to making any sunk investment. To an extent, this statement of the objective is abstract, but it is not empty of content. With regard to any element of the regulatory framework we can ask the question: Is this element consistent with the contract that the parties themselves would have negotiated if they could have negotiated ex ante?

This perspective highlights a fundamental tension in public utility regulation — between prescription and adaptability. It is possible to write highly prescriptive long-term contracts. But the greater the uncertainty about the future, and the longer the contract, the greater the need there is to allow flexibility to allow adjustment and adaptation to changing market conditions that were not specified in the formal contract signed at the outset. Regulatory contracts tend to be very long lived and tend to apply after an initial period of fixed-price contracts have expired. Regulatory contracts therefore tend to favour flexibility over prescription. This flexibility is, to an extent, incompatible with the need to provide assurances to both the customers and the service provider, that the sunk investments they make will be protected in the future. In the case of regulatory contracts, this problem is partly resolved through the establishment of a permanent, long-lived dispute resolution body (the public utility regulator) which can develop and maintain policies and principles over time, providing the parties a degree of assurance as to the future, while maintaining a degree of flexibility to adjust or adapt those policies over time.

This approach has fundamental implications for day-to-day regulatory policy decisions of the ACCC and the AER, such as questions over the design of pricing arrangements for the NBN, the allocation of shipping slots at grain terminals, the design of regulatory appeal mechanisms, or the introduction of time-of-use tariffs (associated with smart meters) in electricity distribution businesses.

I have argued that the perspective set out here better fits and better ‘explains’ current regulatory practice than the alternative that public utility regulation is primarily designed to minimise
deadweight loss. But this does not imply that current regulatory practice perfectly fits the predictions of this model. Rather, this approach suggest a number of directions for future reform of regulatory regimes in Australia, including strengthening the role of consumers, clarifying the role of the regulator, altering the balance of rights in the regulatory reset process, changes to the handling of government-owned businesses, and changes to the handling of the cost of capital.

I suggest that these changes would bring the regulatory framework closer to the long-term contract that the parties themselves would have agreed if they could have negotiated costlessly prior to making any sunk investment. I suggest that this is a useful criterion for assessing regulatory policy proposals going forward.
Appendix A: A brief history of public utility regulation in the US, the UK and Australia

Public utility regulation in Australia has a relatively short history — dating back to the National Competition Policy reforms of the mid-1990s. Yet, the ‘monopoly problem’ has been around for a very long time. In fact the history of public policy towards monopolies is older even than the country of Australia itself. In order to understand the context of the reforms in the 1990s it is valuable to take a look back at the history of public policy towards monopoly.

Monopolies have been around for a very long time. In 1776, Adam Smith in the *Wealth of Nations* commented on the administration of tolls for toll roads and canals, arguing that in the case of toll roads (which he distinguished from canals) responsibility for tolls should fall to commissioners or trustees. Smith was optimistic that the problems with control of toll roads that had been experienced to date were capable of being remedied in time:

‘The tolls for the maintenance of a high-road cannot, with any safety, be made the property of private persons. A high-road, though entirely neglected, does not become impassable, though a canal does. The proprietors of the tolls upon a high-road, therefore, might neglect altogether the repair of the road, and yet continue to levy very nearly the same tolls. It is proper therefore that the tolls for the maintenance of such a work should be placed under the management of commissioners or trustees.

In Great Britain, the abuses which the trustees have committed in the management of these tolls, have, in many cases, been very justly complained of. At many turnpikes, it has been said, the money levied is more than double of what is necessary for executing, in the completest manner, the work, which is often executed in a slovenly manner, and sometimes not executed at all. The system of repairing the high-roads by tolls of this kind, it must be observed, is not of very long standing. We should not wonder therefore if it has not yet been brought to that degree of perfection of which it seems capable. If mean and improper persons are frequently appointed trustees, and if proper courts of inspection and account have not yet been established for controlling their conduct, and for reducing the tolls to what is barely sufficient for executing the work to be done by them, the recency of the institution both accounts and apologizes for these defects, of which, by the wisdom of parliament, the greater party may, in due time, be gradually remedied.’

The policy issues raised by toll roads and canals were confronted again in the context of railroads. These developed in Britain in the first half of the 19th century, starting with the street railway transportation (powered by horse) in the 1820s and 1830s. Some of the issues with regulating railroads are discussed further below. A number of local (town and city) monopolies also developed in the 19th century including municipal gas (i.e., gas produced from coal), electricity distribution (in the late 19th century) and municipal public transport. The second half of the 19th century also saw the development of the telegraph and, separately, the telephone. A full description of the history of each of these sectors is beyond the scope of this paper. There are many excellent papers on the history of regulation of these sectors.

In both the US and the UK, government was involved in establishing a framework for the control of the prices of these industries from the start. In almost all cases the establishment of a new canal, railway, gas or electric utility required access to public rights of way and therefore required the permission of the municipal or central government. In the UK new canals or railways required the passage of an act of parliament. These monopolies were regulated through a

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95 Smith (1776), book V, chapter 1, page 429.

form of contract known as a ‘franchise contract’. In fact franchises were granted to virtually all of the services that benefitted by the use of public rights of way: ‘Gas, electricity, water, sewer, street railways, telegraph, and separately, telephone, subways, railroad terminals, ferries, private bridges, tunnels and toll roads, as well as service industries no longer marketable today: pneumatic tubes, electrical conduits, refrigeration, central heating, and electric signal services’.  

From the outset these franchises imposed obligations on the service providers in exchange for access to public rights of way. In the UK the typical conditions imposed on a new canal were a 21-year franchise, maximum toll rates (specified in nominal terms), and a dividend payout limitation of 10 per cent. Many of these conditions were carried over into the new railway franchises.

These conditions, where they existed, were not the primary control on tariffs for a number of reasons. First and foremost, there was a hope and a preference that conventional forms of competition between service providers could act as a discipline on tariffs. As each of these new technologies developed (such as railroads, municipal gas, electricity etc.) it was, for a long time, unclear as to the extent to which these new services would compete with existing services or with each other. In many cases new firms (i.e., new franchises) competed directly or indirectly with existing firms. Duplication of facilities was not uncommon. This often resulted in episodes of intense competition, bankruptcies and closures, or arrangements and/or mergers between the firms.

This was before the introduction of modern competition laws. Explicit collusion and other arrangements between firms were not illegal. A new entrant could expect a period of stiff competition, ultimately ending in either an arrangement with or being absorbed into an existing firm. In fact an established firm would often follow a policy of buying off competition from potential competitors. The granting of a franchise was lucrative for this reason — the mere threat of competition could be sufficient to give rise to a pay-off from the incumbent.

Over time, there was a tendency for incumbent firms to merge with or to enter into co-operative arrangements with their rivals. Over time the UK railways took control of competing rail routes and canals, often withdrawing them from service. Independent railways had good reason to co-operate with one another — to provide through-services and to coordinate timetables. An organisation (the Railways Clearing House) was established specifically to facilitate beneficial co-operation. But the same organisation naturally also facilitated co-operation on tariffs.

Over time, as the penetration of these services increased, so did the investment by downstream businesses and customers in reliance on the services — perhaps in the form of electric wires or gas pipes in homes and buildings, or the investment in new firms or new ways of doing business which relied on the new services such as the railway, the telephone or the telegraph. As the level of customer investment in these services increased, both the level and the discrimination in the charges for utility services became highly politically sensitive. Foster (1992) notes that, with respect to railway rates in the UK:

"Traders objected with increasing vehemence both to the absolute levels of railway rates — there were always those to recall how much lower overseas rates remained — and to"

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97 Priest (1993), page 302.

98 ‘… the period 1780–1820 was … a time of low inflation so that the tolls fixed in nominal terms for 21 years were unlikely to have needed resetting to cover the general cost and price rises in the way that they would have done in the twentieth century.’ Stern (2003), page 13.

99 In Chicago, Troesken (1996) reports that at one point local city councillors were elected on a campaign promise to cut utility rates.
the distortions in railway pricing produced by discrimination. By 1887 … there were 13 million different rates on the Great Northern and 20 million on the London and Northwestern alone. … They reflected every kind of difference in distance, traffic and quality of service, obscuring the extent to which they were discriminatory. By now there remained little price competition between the railways or between railways and canals. In Manchester, for example, all five canals had been bought by railways or had been turned into sewers. Rates might be lower between London and Liverpool than between London and Chester because the shipping lines who provided much of the railway freight at Liverpool could move to use another pool. … Among the commonest and angriest complaints were that imports through the ports to inland cities attracted the lowest rates. It was said that it could be cheaper to transport agricultural and manufacturing products from North America than from inland areas to the major city markets of Britain. That the railways could often reasonably reply that this was true, because of the volumes carried, did not appease the chambers of commerce.’

The 19th century was marked by virtually continuous debate between user interests and the interests of the monopoly service providers. In the UK, despite repeated attempts at curtailing the pricing power of the railways, there was very little success. This was due to a number of factors: some of these factors were primarily political, such as the strong representation of railroad interests amongst politicians in the UK (many MPs were also directors of railway companies), and some we would label as ideological, such as the strong objection to limitations on private property rights (preventing the imposition of any tariff regulation ex post on existing railway franchises). In the US, municipal rate regulation of gas companies was held to be in violation of the state constitution protecting private property rights. There was also a lingering hope that conventional competition of some kind might yet prove effective.

In 1872 a Joint Select Committee in the UK remarked that ‘committees and commissions carefully chosen have for the last 30 years clung to one form of competition after another; that it has nevertheless become more and more evident that competition must fail to do for railways what it has done for ordinary trade’. The Committee recommended the establishment of a Railways and Canals Commission with the task of hearing disputes over railway rates. This Commission ultimately also proved ineffective. This was due to the following factors: Throughout this period there was no requirement on railway companies to publish their rates (shippers had no way of knowing whether or not their rivals were obtaining a better deal) and were not required to publish basic statistics such as the volumes of traffic on different routes. There was also no standard system of accounting so no way of determining the costs that had been incurred. For much of the period the burden of proof remained on customers to demonstrate why general or specific rate increases should not be allowed — which in practice was an almost insurmountable obstacle. Finally, the limitation on the dividend payout ratio was both easy to circumvent through the issuing of new stock (‘stock watering’) or, when rules prevented the issuing of new stock, induced the railway firms to pad their cost or invest in marginally profitable routes.

Until 1894 it was up to customers of the railways to object to price rises. These objections were costly and therefore hardly ever attempted, and even more rarely successful. In 1894, in a further attempt to control the power of the railway companies, the burden of proof for rate rises was reversed. After 1894 railway companies had to demonstrate to the Commission why they should be able to raise rates. The effect of this reform was significant. From that time on, railway companies were, in effect, prevented from raising rates. At the same time, railway companies became wary of lowering rates (for fear that they would not be able to raise them in the future). As a consequence, railway rates became ‘ossified’:

100 Foster (1992), pages 46–47.
'Thus the consequences of the shift in the burden of proof were that before 1900 the railways were able to raise very few rates and that after 1900 they were not even able to raise them to cover costs, or lower them to meet competition. What made this devastating for the railways was that after twenty years in which prices, including those of railway inputs had fallen, prices generally started to rise again, just as the railways’ fares and charges were frozen.'

There was an immediate decline in railway profitability. At the same time, as the quality of UK roads increased, there was a rise in road freight transportation in direct competition with rail freight. In 1921 the UK railways were subject to a forced amalgamation into four main-line railways and operated as a cartel. In 1947 they were nationalised.

Although the device of regulation by public utility commission originated with the railway sector in the UK, the experience of public utility regulation in the 19th century cannot be held to be a success. This might be due to factors such as the complexity of rail services (the vast differentiation in the number and variety of services and the difficulty of specifying quality) and the development of a technological rival (road freight). It was also due to ideological factors (such as the reluctance to impose restrictions on private property rights), political factors, and simple inexperience with regulation.

In the US, the political and legal battles over utility rates operating under municipal franchise in the 19th century eventually led to the establishment of ratemaking commissions that resembled modern public utility commissions exercising discretion under a broad regulatory contract.

'The system of municipal regulation by franchise, however, suffered many problems. … There is substantial evidence of persistent difficulties relating to specifying the franchise contract, adapting it over time to new conditions, and monitoring compliance with the contract for the benefit of the citizenry. These various problems closely resemble now well appreciated problems in the execution of long-term contracts for the supply of a product or service, except that for municipal utilities, they appear more difficult since municipal franchise contracts incorporated more diverse sets of services and, for reasons to be explained, extended for longer terms than typical long-term contracts in modern commercial settings.

… In response to these many problems, as city governments gained experience in administering utility franchises, municipalities amended franchise contract design and administration in systematic ways. Although initial franchise agreements often defined performance requirements with broad and general standards, later contracts incorporated provisions that were increasingly detailed, seeking greater benefit to the citizenry through more complete specification of the price structure and of service requirements. More precise specification of terms, however, created a different set of difficulties. And over time, franchise contracts were amended further to be made more flexible, frequently defining requirements again in terms of general standards, but now to be administered in their details by council subcommittees or boards of arbitrators.

Though implemented by means of contract, this method of control begins to resemble the operation of a regulatory commission. Indeed, … the adoption of regulation by commission cannot be claimed to differ qualitatively from the regulation by city council or, often, by specialized committee that preceded it in many jurisdictions.'

Given the political sensitivity of utility tariffs, local (city based) service providers were opposed to regulation by a local committee that could be controlled or influenced by the local city council. The compromise that emerged was regulation by a state-based entity — which we would now

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recognise as a public utility commission. By 1922 the majority of the states in the US had established permanent public utility commissions for the regulation of gas and electricity tariffs. This approach to the monopoly problem proved durable and has survived, with relatively minor changes to the present day.

In Australia, as in the US and the UK, the earliest monopoly service providers were private companies operating under municipal or state franchise. However, in the 20th century these services were almost exclusively provided by government owned firms. In most instances, government take-over of these services in Australia predated nationalisation in the UK:

In 1901 the Commonwealth Postmaster-General’s Department was established with a monopoly over domestic telecommunications services and carriage of all letters weighing up to one pound\(^\text{102}\) (in the UK, inland telephone services were nationalised under the General Post Office in 1911).

The first railways in Victoria were private companies, but when these failed or defaulted they were taken over and absorbed into the state-owned railways. The Department of Railways in Victoria was created in 1856. In 1883 a Victorian Railways Commission was created to construct, maintain, and manage the Victorian state railways. In the UK railway nationalisation did not occur until 1947.

Electricity in Australia was originally provided by generation and distribution companies operating under municipal franchises. These included the municipal-owned Spencer St Power Station and the privately-owned Melbourne Electric Supply Company. In 1920, Victoria created the State Electricity Commission of Victoria. The SECV took over a number of small municipal electricity distributors in the 1920s and the Melbourne Electric Supply Company in the 1930s. In the UK the Central Electricity Board was established in 1926.

By 1980 in Australia (as in the UK) the government played a major (if not exclusive) role in all of the public utility sectors. However, starting in the late 1980s, macroeconomic pressures and dissatisfaction with the performance of government-owned enterprises led to a new round of reforms.

Government ownership initially proved a successful compromise. These sectors experienced considerable investment and relatively stable prices under government ownership. However, government ownership has its drawbacks. Specifically, government ownership insulates management from normal corporate governance disciplines such as the threat of takeover or bankruptcy. The lack of effective comparators for some monopoly firms (whether in private or public hands) makes it difficult for outsiders to judge whether or not the firm is being operated efficiently. This problem is compounded by the fact that the objective function for a publicly owned firm is often not clear (there may be a trade-off between incentives on management and prices to consumers), especially where there are other implicit or explicit social policy objectives (such as requirements to maintain uniform pricing, or requirements to hire workers in rural areas). Finally, the benefits of monitoring to improve the efficiency of a government enterprise are diffuse — spread across the population. The benefits to any one individual from monitoring the efficiency of a government-owned firm are weak. For these reasons, firms in government ownership typically face relatively weak incentives to control their costs. Instead, government ownership over time usually allows the creation of rents which are typically shared between workers, consumers and politicians.

By the 1980s and 1990s there was a concern that the lack of productivity and investment in monopoly service providers was hindering overall productivity growth and economic

\(^\text{102}\) Gray (2009), page 8.
performance. There was a desire to seek ways to improve the performance of state-owned firms. In the UK, starting in the 1980s, three related reforms were pursued:

a) Corporatisation and privatisation. This was designed to strengthen the corporate focus on efficiency and profitability and to eliminate or clarify government objectives with respect to pricing and/or hiring policies.

b) The promotion of competition in contestable segments of these industries. In both the US and the UK, monopoly service providers were heavily involved in upstream and downstream services related to the ‘core’ monopoly. Allowing competition in the contestable services (often through mandated access to the remaining monopoly services) further increased competitive pressures on efficiency, innovation, and service delivery.

c) The establishment of arms-length regulation by a government agency. The 1980s witnessed the creation of a large number of new regulatory agencies in the UK (Oftel, OFFER, and Ofgas — Ofwat and the Office of the Rail Regulation were created in the early 1990s).

The reformers in the UK and subsequently in Australia recognised (somewhat reluctantly) that in certain sectors some form of government control over prices was inevitable and couldn’t be avoided. However, the reformers in the UK were determined to not emulate ‘rate of return’ regulation as it was (believed to be) practiced in the US. Instead, they were determined to implement what was known at the time as ‘incentive regulation’. Following a proposal by Professor Littlechild, this typically involved allowing a basket of prices to evolve according to the consumer price index less a discount factor — known as RPI-X regulation.

The reforms in Australia largely followed those in the UK. In Australia, although there was some reform to the telecommunications industry (and, to an extent, airports) in the 1980s, the dominant reforms occurred in the 1990s. The first major reforms were in Victoria where, in 1994, the electricity industry was split into five distribution and retail companies, five generation companies, and a transmission company. These were subsequently privatised between 1995 and 1999.

These state efforts were, however, quickly overtaken by developments at the Commonwealth level. The government of the time saw competition and regulatory reform as a tool to stimulate productivity and efficiency in many parts of the Australian economy. Following the report of the Hilmer committee in 1993, the Australian Government entered into an agreement with the state governments in 1995, known as the National Competition Policy agreement.

The reforms in that agreement were in line with the developments in the UK but they went further in promoting the development of competition. In addition to corporatisation, the agreement sought to eliminate the competitive advantages of government business enterprises. The agreement also required a systematic review of all legislation that restricted competition. The review extended the scope of the competition law and the Prices Surveillance Act to apply to state-owned businesses. Finally, the agreement also created a new power (unique in the world) to mandate access to certain monopoly facilities which meet the criteria set out in the Act.

In terms of public utility regulation, the primary effect of these reforms was (a) the creation of new arms-length regulatory arrangements which explicitly focused on the non-contestable segments of these industries (such as the transmission and distribution components of the electricity sector, or the local loop in telecommunications) and (b) the creation of new independent regulatory agencies. The present era of public utility regulation in Australia has its

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103 In NSW the Government Pricing Tribunal was created in 1992 but its scope was limited to setting the prices of government businesses. The first conventional regulatory authority was arguably the Office of the
roots in the pro-competition reforms of the 1990s. As this short review emphasises, the reforms of the 1990s did not create the need for some form of public policy towards natural monopoly — they merely changed its form from regulation-through-government ownership to arms-length regulation by commission. For the reformers of the 1990s, the focus was on promoting competition. Public utility regulation was something to be avoided. At best, where it could not be avoided, it was viewed as a necessary evil. Relatively little thought or attention was given to the form of public utility regulation, except for the view that any future utility regulation was to be a form of incentive regulation and was not to be a form of rate of return regulation. This principle can be seen reflected, for example, in the 1995 Victorian Electricity Supply Tariff Order. Beyond that guidance, the new regulators were largely left with a degree of discretion to develop the new regulatory regimes.

Starting in 1998 with electricity distribution and the Victorian Office of the Regulator General, and in 1999 with electricity transmission under the ACCC, the regulators in Australia decided to adopt an approach to regulation which became known as the ‘building block model’. This approach is not unique to Australia (very similar approaches are used in the UK and the US) but those jurisdictions apparently do not use this term. The building block model is a tool for ensuring that the present value of the revenue stream of the regulated firm matches, over time, the present value of its expenditure (plus or minus any incentive payments). The building block model is based around the use of a regulatory asset base, which is updated over time, and from which an annual revenue allowance is derived.

In the telecommunications sector, in 1997, coinciding with a transfer of economic regulation from Austel to the ACCC, new telecommunications-specific provisions (part XIB and XIC) were added to the Trade Practices Act. In the same year the ACCC developed its Access Pricing Principles, which established total service long run incremental cost (TSLRIC) as the basis for pricing services in telecommunications. (In late 2009, the ACCC initiated a review of these pricing principles leading to a move towards the use of the ‘building block model’ in establishing prices in telecommunications.)

The first decade of the new millennium witnessed many reviews, refinements and adjustments to the regulatory regimes establishing in the 1990s. There was also a more concerted and coordinated response from the regulated (and often newly privatised) industries. In 2002 the Productivity Commission published its review of National Access Regime, emphasising that utility regulation may act as a deterrent to investment. The debate over the impact of regulation

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104 In a recent speech Sibylle Krieger identifies ‘economic … regulators of the kind now considered mainstream’ with the pro-competition reforms of the 1990s. This seems to be a mistake. As noted above, some forms of public utility regulation (such as municipal franchising in the US and the Railways and Canals Commission in the UK) preceded competition law in the US by several decades at least. Public utility regulation in the US (which dates to the 1920s) existed for several decades before the pro-competition reforms of the 1980s and 1990s that we now associate with competition policy.

105 Clause 2.1: ‘In making any Price Determination the ESC must, notwithstanding the criteria specified in the ESC Act or the EIA: (a) utilise price based regulation adopting a CPI-X approach and not rate of return regulation’.

106 See the Wikipedia entry: Building Block Model.
on investment remained active for much of the rest of the decade. The PC recommended clarifying the pricing principles to make clear that the ACCC must ensure that the revenue is at least sufficient to cover the long-run costs of providing access to services and recommended that consideration be given to adding a ‘truncation premium’ to the cost of capital.

In 2004 the PC completed a substantial review of the regime governing regulation of gas pipelines. The PC again raised concerns about the likely impact of the regime on pipeline investment. In addition, consistent with its emphasis on conventional economic theory, the PC recommended that an ‘objects clause’ be inserted in the Gas Act. The proposed objective focused on economic efficiency and made no mention of the long-term interests of end-users. In addition, the PC recommended that, in considering the rate of return proposed by the pipeline owner, the regulator must accept the proposal if it falls within a ‘range of plausible estimates’. These proposals were later influential in the design of the regulatory framework in electricity.

In 2005, during a boom in demand for Australia’s mineral resources, certain bottlenecks appeared in key pieces of infrastructure, particularly in certain coal infrastructure supply chains on the east coast of Australia. In response, the government commissioned another review — from the so-called Exports and Infrastructure Taskforce. That review placed much of the blame for bottlenecks squarely on utility regulation practices:

‘The greatest impediment to the development of infrastructure … is the way in which the current economic regulatory framework is structured and administered. It is adversarial, cumbersome, complicated, time consuming, inefficient and subject to gaming by participants. There are too many regulators, and regulatory issues are slowing down investment in infrastructure used by export industries.’

‘If our problem in earlier years was at times profligate investment by government owned monopolies, the risk today is that efficient commercial investment will be delayed or even deterred by inappropriate policy settings. Simpler, more transparent, predictable and accountable regulation is of key importance in this respect’.

The E&ITF recommended that a regulator should not reject a proposed access arrangement which fell within a reasonable range simply because it preferred another point in that range. Effectively, like the Productivity Commission, the E&ITF argued that the burden of proof should be placed on the regulator to demonstrate that a particular access arrangement is outside a reasonable range. In addition, the E&ITF recommended that there should be merits review of any regulatory decisions that involved the terms and conditions of access.

In the electricity and gas sectors, following an episode of high prices in 2000–2001, the Council of Australian Governments initiated a review of the National Electricity market, chaired by Warwick Parer. That report, published in 2002, focused on matters related to the wholesale electricity market (both the spot and forward markets), together with governance issues, transmission planning issues, and other related issues (such as demand side participation and control of greenhouse gases). The Parer report did not spend much time on regulation issues, but it did make some suggestions, such as ‘giving further consideration to regulators relying more on industry wide rather than detailed company specific information’, increasing the size of financial rewards and penalties associated with service standards, and reducing uncertainty. Specifically, ‘there needs to be greater clarity on how the gains from cost reductions will be

107 E&ITF (2005), page 2.
shared over time, and greater certainty on how particular investments will be treated in the cost base'.

In the light of the recommendations of these four reviews — the Parer review, the Exports and Infrastructure Task Force, and the two reviews of the Productivity Commission — it was widely believed that further regulatory reform in Australia would require harmonisation of the state-based regulatory regimes, and consolidation of public utility regulation in a single regulator. Following the recommendations of the Parer report, the Australian Governments created two new institutions — the Australian Energy Regulator and the Australian Energy Markets Commission, commencing 1 July 2005. The AER was to have immediate responsibility for electricity and gas transmission regulation and was to acquire responsibility for electricity and gas distribution regulation over time.

One of the first tasks of the AEMC was to review the provisions in the National Electricity Rules governing price regulation of transmission businesses. As we have seen, at that time (2006) there was a view in some circles that regulation was hindering investment, that the discretion of the regulator should be constrained, and that the burden of proof should be on the regulator to demonstrate that the proposal of the regulated firm was unreasonable. The AEMC ultimately put in place a new regime which was broadly based on the ACCC’s existing practices (as set out in the ACCC’s Statement of Regulatory Principles). In particular, the new rules codified the use of the building block model, with detail as to how each of the components of the building block model were to be calculated. There were also new rules limiting the extent to which the AER could vary the pricing proposal of the regulated firm (‘to the extent necessary’ to ensure compliance with the rules). The following year (2007) the Ministerial Council on Energy (MCE) implemented new rules governing merits review in the National Electricity Law. In the same year the MCE implemented parallel reforms to the regulatory regime for distribution businesses. There have been no further major changes to the regulatory framework for electricity and gas since January 2008.

In summary, can we make any comment on the entire history of public policy towards monopoly in Australia? Troesken (2006) is inclined to view the history of regulation as having ‘an odd circular quality’: during the 19th century gas, water and electric companies were subject to municipal regulation through franchise contracts; during the 20th century this was replaced by regulation by public utility commission or (in the case of water) municipal ownership; in the 1980s and 1990s, he claims, much of that regulation was relaxed, and water companies privatised, and the remaining firms subjected to a lighter form of regulatory oversight. Troesken (2006) explains this circularity as, at least in part, due to the need for occasional regime change in public utility markets. Drawing on the work of Mancur Olson (1982) he argues that ‘over time institutions tend to ossify and slow economic growth as entrenched interest groups work to secure a greater share of society’s resources’. According to this theory, ‘transitions in regulatory and governance regimes — whether from market-oriented to statist or vice versa — can dramatically improve the operation of markets’. In short, in Troesken’s view, the occasional reform is good, no matter what direction it takes.

In my view, the circular view of the history of regulation is rather too pessimistic. Yes, sometimes reform is good for its own sake — reform breaks up the rent-sharing relationships which can become established in any regime (between workers and state-owned firms in the period of nationalisation, or between regulated firms and the regulator in the period of regulation-by-commission). But, we have gained through experience. Over time it has become clearer as to what regulation is trying to achieve, and what approaches to regulation are dead-ends. Provided we continue to learn from that experience we can improve understanding and performance, even as we go around the cycle of reform.

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Appendix B: The evolution of the length of regulatory decisions over time

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<thead>
<tr>
<th>Year</th>
<th>Regulator</th>
<th>Decision</th>
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<tbody>
<tr>
<td>2000</td>
<td>ACCC</td>
<td>NSW/ACT Transmission Network Revenue Caps, 25 January 2000 (TransGrid and Energy Australia), 177 pages</td>
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<tr>
<td>2001</td>
<td>Queensland Competition Authority (QCA)</td>
<td>Regulation of Electricity Distribution. May 2001 decision. Final decision — 176 pages Appendices — 53 pages</td>
</tr>
<tr>
<td>Year</td>
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<tr>
<td>2004</td>
<td>ICRC</td>
<td>Investigation into Prices for Electricity Distribution Services in the ACT. March 2004 decision for distribution in ACT. Effective 1 July 2004 to 30 June 2009.</td>
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<tr>
<td>2005</td>
<td>Queensland Competition</td>
<td>Regulation of Electricity Distribution.</td>
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<td>2009 AER</td>
<td>NSW distribution determination 2009/10–2013/14 Final decision — 722 pages</td>
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| 2010 | AER | Victorian electricity distribution service providers  
                  Distribution determination 2011–2015, October 2010  
                  Final decision — 1042 pages  
                  Appendices — 791 pages |
                  May 2010 decision.  
                  Effective 1 July 2010 to 30 June 2015.  
                  Final decision — 372 pages.  
                  Appendices — 147 pages. |
                  426 pages |

**Figure 3: Evolution of the length of regulatory decisions over time**
Figure 4: Index of number of pages in final decision document
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