REVIEW OF IPART’S APPROACH TO INCENTIVE BASED REGULATION

A REPORT BY CEPA

October 2009

Final report

ORIGINAL

Submitted by:

Cambridge Economic Policy Associates Ltd.
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SUMMARY

This report helps identify for IPART some of the examples of alternative regulatory approaches adopted in Australia and elsewhere in the world that IPART may be able to make use of to develop and continually improve the quality of its regulation. The report draws on an extensive range of case studies covering a wide range of examples, all with their specific characteristics and institutional factors. The case studies include four other Australian regulators, a range of examples from the UK, examples from France, Italy, the Netherlands and Ireland in Europe, the US, Asia and New Zealand. Inevitably the report is only a limited summary of some of the key issues identified by us and IPART, but the case studies should hopefully also provide an ongoing resource for IPART to draw on to identify alternative approaches to regulation that it may be able to make use of in the future.

IPART’s approach and the context for its regulation

IPART regulates a range of mainly Government owned companies in a number of sectors, including electricity, water and public transport. The range of sectors regulated by IPART present different challenges, as the electricity retail sector is a developing competitive market, while the water sector is, at present, largely monopolistic. The rail sector is characterised by a significant Government subsidy alongside revenue from fares.

IPART has a substantial amount of regulatory discretion in carrying out its reviews and how it prioritises and interprets the statutory duties to which it is subject. There is also no formal appeal mechanism for parties that have concerns about IPART’s decisions. However, there are some constraints on IPART’s discretion, with the nature of the constraint depending on the head of power under which the determination is made. For example, the Government may, for certain sectors (e.g. electricity retail) set out terms of reference for a review, which can include quite detailed guidance about how IPART should assess the efficiency of costs. The Government can also direct IPART to include certain projects within price determinations, but leave it to IPART to determine the efficient costs for delivering the project.

It is broadly reasonable to characterise IPART’s current approaches to regulation as relatively standard incentive based or RPI-X regulation. In particular, IPART uses a building blocks approach to set price caps in the water and rail sectors, based on a determination of efficient opex and capex, sets a Regulated Asset Base (RAB), and an allowed rate of return. The retail energy sector is probably the most different from this approach in that electricity prices are set with regard to market-based wholesale electricity purchase costs and gas prices are set by agreement with gas retailers which reflects the more competitive nature of this sector. IPART’s approach to setting the price control for CityRail is quite innovative in its consideration of the externality benefits of rail travel to inform the price cap.

Similarities and differences with the other regulators
There has been a divergence in the way that traditional RPI-X regulation is applied. Some sectors in the UK, notably water and energy, have adopted very complex price controls with a proliferation of different incentive schemes to address specific issues, such as environmental harm. On the other hand, other countries such as Ireland (and some continental European countries) continue to adopt relatively simple price controls based around a core revenue allowance, with some limited additional incentives or pass-through arrangements. These divergences can also be seen somewhat in the approach to setting and updating price regulation, where some countries are moving to very extensive reviews to set price controls, such as New Zealand, while other countries, again such as Ireland, have relatively limited consultation prior to setting a price control. These differences in approach reflect both institutional differences (New Zealand has extensive rights of appeal for companies that are dissatisfied with the regulators decisions, while there is no right of appeal in most sectors in Ireland) and differences of view about how best to set price controls. IPART appears to be somewhere in the middle of this spectrum, which may be quite a good place to be, in that it is avoiding some of the costs of complexity, while securing the benefits of incentive based regulation.

While there has been a divergence in the high level approaches there remain lots of similarities between the approaches adopted by regulators, including:

- **The length of price control reviews** – Most regulators, particularly for network monopoly activities tend to set price controls for four or five years, although there are some examples from the US of longer price controls – up to 20 years. IPART tends to set price controls for slightly shorter periods than the generally accepted standard of five years and until recently set significantly shorter periods for public transport.

- **Setting of, and incentives regarding opex** – Most regulators adopt a broadly similar approach to setting opex, based on reviewing historical expenditure and considering whether future activities justify an increase in expenditure. Regulated entities are usually incentivised to reduce costs by being allowed to keep any underspend for a limited time period. On the other hand, companies bear the risk of any overspend. IPART is broadly in line with this approach. In water regulation, savings are retained for the life of the price control and are passed on to customers at the next price control re-set. In the passenger rail sector, maximum fares are set for each ticket type but there was also a recommendation to cap government funding subject to limited sharing of revenue risk. Incentives tend to be asymmetric, with companies bearing the risk of overspends, while the company keeps any underspends for a limited time period. The actual degree of asymmetry will depend on how well the regulator has forecast the future potential for efficiency gains. However, if there is a material risk for the company of overspending it would lead to a direct loss of shareholder value.

- **The role of service performance measures** – Almost all regulators make use of service performance measures to which some revenue is attached. The mechanisms for developing these measures tend to be relatively qualitative.
and it is not always clear to what extent they represent the priorities of customers. Some regulators are making increasing use of customer Willingness to Pay evidence to support these measures. It is clear that while these measures are an important part of price controls, regulators remain concerned that the measures do not capture all the most important outputs that companies should deliver, and in particular longer term measures related to asset performance. A few regulators, such as Ofgem are beginning to develop these types of measures. Some regulators have recognised that the management of regulated companies can be incentivised to improve performance without specific financial incentives. For example, in the England and Wales water sector, the Overall Performance Assessment that leads to a “league table” of company performance is seen to provide a very strong incentive because of the reputational impact on company management of their performance in the league table. In the water sector, IPART reports on measures relating to output and major capital projects. Unsatisfactory performance against these measures may negatively impact on allowable revenue. In regulating rail, IPART recommended that the NSW Government set targets for a number of indicators, covering factors such as minimum frequency of services. Quality of service is taken into account in determining the efficient levels of opex, however, the determination did not link performance to sanctions.

Annex 5 includes a comprehensive comparison of the similarities and differences between the examples considered in the report.

Interesting approaches for IPART to consider

We have identified a number of interesting examples from other sectors and countries that IPART may wish to monitor or further explore including:

- **Greater use of consumers and their representatives in price control reviews**
  - The Dalymple Bay Coal terminal in Queensland is an example in Australia of greater consumer involvement, while the US and Canada includes examples of direct negotiation between utilities and consumer representatives. The CAA in the UK has made use of Constructive Engagement to facilitate discussions between airports and airlines. These approaches are generally used to inform regulators about the nature of capex and to some degree opex, that customers are willing to pay for. However, the structure of the industry will be important in determining the applicability of these approaches, and IPART will need to consider their use carefully on a case by case basis – this could build on elements of consumer involvement already seen in aspects such as the Hunter Valley Rail regulation.

- **New incentives for capex** – Regulators continue to consider how best to provide incentives for efficient capex. While most regulators adopt an approach based on *ex ante* scrutiny with rolling incentives, Ofgem and Ofwat have recently
introduced menu regulation, which aims to combine incentives for companies to accurately forecast capex *ex ante*, while spending it efficiently *ex post*. While there is more for regulators to do to fully develop these ideas they do offer an interesting option for identifying key trade-offs. While many of the regulated industries that IPART is responsible for are government owned this need not hamper the utilisation of such mechanisms, provided the right incentives are in place for the managers of the businesses.

- **The use of pass-throughs and re-openers** – IPART’s statutory remits appears to create some limitations on its ability to use pass-throughs, and in particular re-openers. In many regulated sectors these tools are seen as standard ways to allocate and minimise risk, with customers taking some risk associated with re-opening price controls in return for a lower cost of capital. Given legislative provisions there are limitations to the lessons that IPART can learn about the use of re-openers within price control reviews. It appears that IPART already considers carefully the merits of pass-throughs based on an assessment of cost controllability, which appears to be a best practice approach to these issues. In addition, IPART effectively has a ‘ship-wreck’ clause in place, given that it has the power to make a new determination when circumstances have changed so as to render a determination no longer appropriate.

- **Use of inflation indices other than general or consumer inflation** – This is an interesting new development in response to concerns that the input costs of regulated utilities were not closely related to measures of consumer or general inflation. The Commerce Commission in New Zealand, Hong Kong bus regulation, the arbiter for the London Underground PPPs and the Irish retail electricity sector are recent examples that have used indices other than general inflation as part of determinations. It is probably too early to evaluate their effectiveness. While IPART does already use some of these options it may be possible to utilise a broader set of mechanisms.

**Overview**

The review of examples of incentive based regulation elsewhere in Australia and in other countries highlights that there a range of interesting and different approaches being taken to regulation. While it is far from clear that these are all appropriate to IPART’s circumstances or clearly better than its current approaches, they provide interesting opportunities to learn lessons and consider alternative options. It will be appropriate for IPART to be cautious about adopting alternative approaches that have not been demonstrated to be successful in the types of circumstances that it applies regulation (i.e. generally publicly owned companies). However, there are interesting developments regarding use of inflation indices, customer engagement, capex incentives, output measures and service performance that IPART may benefit from monitoring further over the coming years to understand their longer term success and potential applicability to IPART’s circumstances.
1. **INTRODUCTION**

1.1. **Objectives and scope of the study**

IPART would like to evaluate how its approach to incentive based regulation compares with best practice and approaches used internationally and elsewhere in Australia. Such an assessment will allow IPART to learn lessons that may improve its regulatory approach within its legislative framework. While IPART is interested in comparing its approach across all aspects of incentive based regulation, it is particularly interested in the lessons it can learn regarding:

- Approaches to assessing the appropriate level of operating and capital expenditure, including the potential to involve final or intermediate customers in these decisions.

- The role of incentives to affect company behaviour. As part of this issue IPART is particularly interested in the menu regulation approach used by Ofgem and being introduced by Ofwat.

- The scope to introduce output or performance measures.

- The use of re-openers and pass-through mechanisms.

- The use of general inflation indices or industry specific indices as part of price control determinations. IPART is particularly interested in understanding any cases where regulators have used industry specific indices, and how they have addressed issues such as information asymmetry and the opportunity of gaming.

IPART’s regulatory activities are at present primarily focused on the water and transport (rail, buses, ferries and taxis) sectors, with a somewhat reduced role in the energy sector (focused on retail energy activities). However, IPART would like to draw on the lessons that can be learnt from the application of incentive based regulation in a range of sectors, including recognising that the energy sector has many of the most developed examples of incentive based regulation.

It is also important to recognise that IPART regulates sectors subject to different degrees of competitive pressure, and in particular, there is a contrast between the largely monopolistic activities of the water and transport sectors with the competitive energy retail activities. IPART would like to understand whether the lessons to learn from other examples differ depending on the nature of the market being regulated, and the degree of competition that is present. Many of the companies that IPART regulates in relation to pricing are owned by the State or local governments, which will be important to consider when reviewing the lessons to learn from other sectors, as some approaches that have been adopted for privately owned companies may not work as effectively for publicly owned companies.

1.2. **Approach to the study**
To undertake this study we have worked very collaboratively with IPART. IPART has taken the lead in preparing case studies of its regulatory approach for four recent determinations covering:

- City Rail;
- Electricity retail companies;
- Sydney Catchment Authority (water); and
- Hunter Water Corporation.

IPART has also led the development of four case studies of approaches to incentive based regulation by other Australian regulators, which are:

- Australian Energy Regulator – Electricity distribution;
- Victoria Essential Services Commission – Melbourne Metropolitan Water determination;
- Western Australian Economic Regulatory Authority – Retail electricity; and
- Queensland Competition Authority – Access agreement for the Dalrymple Bay Coal Terminal.

We have updated and revised our case studies from a report prepared for Ofgem’s RPI-X@20 project\(^1\), and supplemented these case studies with some additional international examples agreed with IPART, which cover:

- The regulation of the Italian water sector.
- Bus regulation in Hong Kong.
- Retail electricity regulation in the Republic of Ireland.
- The regulation of bulk water supplies by Ofwat.
- Ofgem’s recent proposed changes to the regulation of retail energy prices in Great Britain.
- The US retail electricity sector as an example of negotiated settlements between final and intermediate customers and regulated utilities.
- The Dutch water sector as an example of self regulation involving benchmarking.

Working with IPART, we have then drawn together this report to identify the key similarities and differences between IPART’s approach and the approach of other regulators to incentive based regulation. The comparison particularly focuses on the five

\(^1\) http://www.ofgem.gov.uk/Networks/rpix20/publications/CD/Documents1/CEPA%20Final%20Ofgem%20report%202009.pdf
issues discussed above that are of particular interest to IPART, but we have also drawn out other significant similarities and differences. This includes considering whether there are any lessons that can be learnt about using incentive based regulation for Government owned entities of the type regulated by IPART.

Having identified the key similarities and differences between IPART’s approach and that of other regulators, we have sought to identify interesting differences in regulatory approaches and emerging developments that may be relevant to IPART’s responsibilities and which IPART may wish to explore further. In part this is about evaluating how IPART’s current approaches in each sector compare to best practice. Although there will always be a challenge in identifying which aspects of other regulatory regimes have unambiguously been successful, we have worked closely with IPART during this stage of the project.

When learning lessons from other sectors we have sought as far as possible to draw on a range of examples from the case studies to ensure that we get a balance of international experience. However, it is probably fair to say that the UK examples are particularly rich with regard to approaches to specific incentives, and the use of pass-throughs and re-openers, so we have drawn heavily on the UK examples for these issues. The US examples provide a very different approach with longer price caps, while some of the non-UK European examples are interesting with regard to showing how relatively simple incentive based regulation works. Finally, the examples from Asia and New Zealand provide good contrasts, where they have clearly adopted approaches from other countries, but also thought quite innovatively themselves. Although initially we might have expected that the Australian examples would closely mirror IPART’s approach, we have noted that there are contrasts, not least because each state and at the federal level, gives its regulators different remits and powers.

1.3. Structure of the report

The remaining sections of this report are:

- Section 2 summarises IPART’s current approaches to incentive based regulation.
- Section 3 discusses some of the lessons that can be drawn from the approaches presented in the various case studies and discusses the key issues identified by IPART and other issues arising from the case studies to consider emerging developments that may be relevant to IPART’s responsibilities and which IPART may wish to explore further.
- Section 4 summarises the key conclusions.

In addition to the main sections of the report there are the following annexes:

- Annex 1 contains the case studies prepared by IPART of its current approach to incentive based regulation.
- Annex 2 contains the case studies prepared by IPART of the approaches to incentive based regulation by four other Australian regulators.
• Annex 3 provides updated versions of the case studies prepared by CEPA for its report for Ofgem’s RPI-X@20 project.

• Annex 4 are the new international case studies CEPA has prepared for IPART.

• Annex 5 contains summary tables that draw out the overall regime in our case studies, the different regulatory approaches to setting capex and opex and to incentivising service performance.
2. **IPART’s Regulatory Approach**

2.1. **Introduction**

To provide a context for the subsequent sections of the report, this section explains the main components of IPART’s current approach to incentive-based regulation in each of the sectors that it regulates. In addition to a high level description of the regulatory approach in each sector it also explains the institutional context within which IPART carries out its regulation.

2.2. **Institutional structure**

IPART’s powers to make or recommend prices for transport, water and energy services are conferred by a range of legislation. As the precise requirements imposed on IPART differ across sectors, its approach to determining or recommending prices and scope for discretion differ. IPART’s approach is also influenced by factors such as the degree of competition within, and structure of, the industry.

IPART has, overall, a reasonable degree of discretion in deciding on the appropriate basis for setting prices. It has developed some standard approaches to undertaking its pricing tasks, such as the use of the building block methodology to determine revenue requirements and multi-year price paths. IPART has sought to apply its regulatory approaches consistently over control periods to provide certainty. It nevertheless reviews the appropriateness of its regulatory approach at each periodic pricing review and whether any aspect should change.

Depending on the head of power under which it is operating, IPART can either make recommendations or determinations. Recommendations made by IPART are not binding and are made to the referring Portfolio Minister who has the final decision-making power. Determinations are made by IPART under powers conferred by the IPART Act or industry-specific legislation and are binding on that industry, though subject to judicial review. IPART is not subject to government control in making any determinations or recommendations.

The sections below describe in more detail IPART’s legislative powers and requirements, and elements of its approach to making price determinations in practice.

2.2.1. **Price reviews – key elements of legislative framework**

*Independent Pricing and Regulatory Tribunal Act 1992 (‘IPART Act’)*

Under the IPART Act, IPART is responsible for determining prices for, and conducting periodic reviews of the pricing policies of, specified government monopoly services (s 11). Monopoly services for which it has a standing reference include those provided by agencies in the water, passenger transport (rail, buses and ferries), roads, ports and
housing sectors (although roads, ports and housing entities within these sectors have not been regulated for pricing purposes under the IPART Act).

It may also:

- determine prices or review pricing policies in respect of government monopoly services at the request of the NSW Premier (s12). In such cases, IPART must take into account matters set out in the terms of reference issued by the Premier; and

- recommend prices or changes to pricing policies if requested to do so by the government under other sections (9 and 12A) of the IPART Act. In such cases, the parameters for IPART’s investigation would be primarily set by the terms of reference for the review.

In the past, IPART has received section 9 pricing references for taxis, privately run ferries and rural and regional bus services. From 2009, rural and regional bus services provided under a service contract will be regulated under the Passenger Transport Act 1990.

How IPART sets prices for monopoly services

IPART may determine prices for government monopoly services in one of two ways (s13A(1)):

- by fixing the maximum price for a service or by establishing a methodology for fixing the maximum price. The latter course may only be taken if IPART considers that it is impractical to fix a maximum price; or

- by both fixing the maximum price for a part or parts of a monopoly service and a methodology for fixing the maximum price for any other part or parts of the service.

IPART may fix or determine a methodology for fixing maximum prices in any manner it considers appropriate (ss 14 and 14A). The only means for passing through costs is through incorporating a methodology in the determination. IPART currently has no legal power to amend its determinations, once made.

In determining maximum prices or a methodology for fixing prices for government monopoly services, IPART may be directed by a Portfolio Minister to include an amount representing the efficient cost of complying with a Ministerial directive or a requirement imposed under a licence, authorisation or under a statutory instrument on the agency (s 16A). S16A directions have been issued in recent bulk and metropolitan pricing reviews to ensure that the costs of capital projects ordered by the Government are recovered through prices.

In practice, IPART has adopted some common or standard methods by which it makes its decisions, such as the use of the building block methodology for calculating the revenue requirements of a business or average prices, where appropriate.

IPART has, in the past, used cost indices to determine maximum fare increases for taxis, buses, privately run and certain publicly run ferries.
Matters IPART must consider

IPART is required to consider a range of issues when making determinations and recommendations for government monopoly services, and to report on what regard it has had to each (s 15). These issues are:

- the cost of providing the services concerned;
- protection of consumers from abuses of monopoly power;
- an appropriate rate of return;
- the effect on general price inflation;
- the need for greater efficiency;
- the need to maintain ecologically sustainable development;
- the impact on pricing of borrowing, capital and dividend requirements;
- the impact on pricing policies of any arrangements that the agency concerned has entered into for the exercise its functions by some other person or body;
- the need to promote competition;
- considerations of demand management;
- the social impact of the determinations and recommendations; and
- standards of quality, reliability and safety.

The Act does not specify how IPART is to take these factors into account or provide guidance on which factors should prevail if the issues compete. For each review, IPART decides which factors are the most important and how they should be taken into account when decisions are made. The Premier may also require IPART to consider specific matters in its investigations (s 13(1)(c)).

Transport legislation requires the consideration of a similar set of factors.

Implementation of maximum prices for government monopoly services

The government businesses concerned are required to levy prices which do not exceed the maximum prices determined by IPART (s 18(1) and (1A)). The approval of the Treasurer is needed if an agency wishes to charge a price below the maximum price (s 18(2)).

In their annual reports, all businesses subject to IPART’s pricing determinations must report on how they have implemented the maximum prices. Information must also be provided on whether IPART recommendations made in pricing policy reviews have been implemented, and reasons must be given for any non-implementation (s 18(4)).
Setting incentives

The main elements to incentive-based regulation in the water and passenger rail sectors are described in detail in the case studies. IPART is seeking to extend the approach used for CityRail to the metropolitan bus sector.

Compliance

IPART may monitor agencies for the purposes of establishing and reporting compliance with a pricing determination made by it and preparing for a periodic pricing review (s 24AA).

2.2.2. Other legislation

Retail prices for the energy sector and bus fares are set under portfolio legislation, rather than the IPART Act.

Gas Supply Act 1996

Competition in the retail gas sector was introduced in stages from 1999 to 2002, and all customers are now able to choose their supplier. IPART continues to regulate default retail prices for small gas customers (those consuming less than 1 terajoule (1TJ) per year) who do not choose a negotiated supply contract.

The Gas Supply Act allows IPART to regulate retail prices for customers using less than 1TJ per year. Section 27A of this Act enables IPART to:

- establish a methodology within which tariffs for delivered gas must be set;
- establish maximum tariffs or maximum average tariffs; and
- prohibit the imposition of certain charges.

Any gas pricing order applicable to the price of gas in a particular area applies to all retailers serving that area. If gas suppliers are aggrieved with IPART’s determination, they may request a review of pricing orders by a Review Panel appointed by the Minister for Energy.

In recent years, instead of establishing gas pricing orders that specify tariff rates, IPART has established agreements with standard gas suppliers (“voluntary transitional pricing arrangements” or VTPAs) that allow these suppliers to set their own prices as long as the average increase in these prices do not exceed a specified rate. IPART monitors compliance with the terms of VTPAs. The main characteristics of VTPAs in the current 2007-2010 determination are:

- The form of price control is a weighted average price cap (WAPC). The WAPC limits the increase in average default prices, weighted by consumption (for variable charges) and by customer numbers (for fixed charges).
• There is a limit on the maximum change in average default prices. In the current
determination, this is the change in the CPI for the previous calendar year, for
most areas. The VTPAs do not contain any constraint on the change in
individual customer bills.

Suppliers can apply to IPART for an increase in average default prices that exceeds the
maximum defined in the VTPAs under special circumstances.

Electricity Supply Act 1995

IPART makes determinations of regulated retail prices by authority of a reference from
the energy Minister under the Electricity Supply Act. In determining regulated retail tariffs
and charges it must have regard to matters set out in the terms of reference and the
effect of the determination on competition in the retail electricity market (s43EB(2)).
The terms of reference may also set out the basis for the assessment of the costs of
supply. IPART must determine electricity retail tariffs or charges in one of two ways: 1)
specifying the tariffs or charges, or 2) specifying the methodology for determining the
tariffs or charges (s 43EB (3)). A cost pass through mechanism may constitute part of a
methodology for determining retail tariffs or charges.

Under the IPART Act, IPART also has a standing reference to determine the proportion
of connection costs that a distribution network service provider may pass on to new
customers and related matters. The IPART case study sets out in detail the industry
context and features of the current retail price determination.

Passenger Transport Act 1990

IPART may make determinations on maximum fares and undertake periodic pricing
reviews for regular bus services (s28J) and ferry services (s16AE) supplied under service
contracts (excluding those services regulated for pricing purposes under s11 of the
IPART Act). In making a determination under the Passenger Transport Act, IPART is
required to take into account matters similar to that set out in s15 of the IPART Act.

Relevant legislative provisions are sufficiently broad to enable IPART to put forward a
methodology for determining fares and, as part of that methodology, a cost pass-through
mechanism. As noted above, IPART is seeking to apply to the metropolitan bus sector a
regulatory approach similar to that established for passenger rail.

Figure 2.1 below summarises IPART’s present approach.

Figure 2.1: A summary of IPART’s approach

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2.3. **IPART Case Studies**

### 2.3.1. CityRail

CityRail is a government monopoly provider of passenger rail services within the greater Sydney region. Approximately 300 million passenger journeys were made in the financial year 2007-08, of which the vast majority were made by working commuters, and which provided total revenue of approximately A$620 million.

IPART decided on a four year determination period, from 1 January 2009 to 31 December 2012. During this period, fares will be adjusted annually, at the start of each calendar year. IPART decided to use the building block approach to determine CityRail's annual revenue requirement. IPART decided CityRail’s annual revenue requirement should include efficient operating and maintenance costs, a return of capital or depreciation, a return on capital, and a return on working capital.

In order to convert into fares the share of CityRail’s revenue requirement to be recovered from passengers, IPART considered the externality benefits of public transport. Both the total and marginal externalities were estimated and, while regard was had to optimal fares under a marginal approach, fares were set to recover total costs less total externalities. This set a benchmark cost recovery level for future investments.

In terms of monitoring CityRail’s compliance with the fare determination, IPART decided to require RailCorp to provide an undertaking that CityRail fares will comply with the determination and a copy of its proposed fares by 15 November each year, as well as information on actual services levels by 30 October each year of the determination period.

### 2.3.2. Electricity retail

There are presently three Government owned incumbent standard retailers who offer regulated tariffs for small customers (those using less than 160MWh a year). Around
70% of small customers are still on regulated tariffs in New South Wales. The Australian Energy Markets Commission will review competition in the New South Wales electricity retail market in 2011 to advise the New South Wales government as to whether price regulation for small customers should be removed from 2013.

The terms of reference from the Government in 2009 directed that IPART should set retail prices to reflect the cost of an efficient Standard Retailer. The price cap includes the costs of services such as transmission and distribution that are regulated by the Australian Energy Regulatory (AER), which are about 44% of the bill, and the wholesale and retail costs (about 56% of the bill). The wholesale and retail costs have a glide path to cost reflective prices by 2010. The price cap is generally a tariff basket with flexibility for the companies to change individual tariffs, but there are some limitations to changing prices for customers in rural areas.

The wholesale price element from 2010 will include the wholesale price of electricity and the costs of the various environmental measures that have been put in place (in particular, the costs of greenhouse gas mitigation policies). The wholesale prices are an estimate of market based electricity purchase costs.

2.3.3. Sydney Catchment Authority

Sydney Catchment Authority (SCA) is a NSW state government agency that is responsible for managing and protecting the water catchment areas and infrastructure under its control, and for supplying bulk water of sufficient quality to Sydney Water (Australia’s largest provider of water and sewerage services) and several smaller customers. SCA’s bulk water supply system is the source of drinking water for approximately 4.5 million people, or about 60 per cent of NSW’s population. Sydney Water currently purchases about 99 per cent of SCA’s bulk water supply.

IPART decided to adopt a three-year determination period, from 1 July 2009 to 30 June 2012. The 3 year term was chosen to align the commencement of the next determination with the next Sydney Water price review. As for previous determinations, IPART used the building block approach to calculate SCA’s notional revenue requirement in each year of the determination period. To apply this approach, it made decisions on the revenue SCA will require for efficient operating expenditure and capital investment over the determination period. IPART decided to set final price levels so that the present value of SCA’s target revenue equates with the present value of its notional revenue requirement over the determination period, an approach that is sometimes referred to as an ‘NPV neutral’ approach.

IPART also decided not to include a regulatory mechanism to address the risk of variations between forecast water sales and actual water sales in the 2009 determination, or to allow SCA to pass through costs associated with pumping water from the Shoalhaven. Finally, IPART decided to require SCA to report on progress against six output measures.

2.3.4. Hunter Water Corporation
Hunter Water is a state owned corporation, whose principal functions are to provide, construct, operate, manage and maintain systems and services for supplying water, and provide sewerage and drainage services, and dispose of waste water. It serves a population of 520,000. IPART regulates Hunter Water’s prices, but its activities are also regulated by quality and environmental regulators.

IPART has recently put in place a determination to apply from 1 July for four years. The main new expenditure item during the price control period will be a new dam (Tillegra), which is due to be completed in 2014. The Government directed that this dam be included in the price control, and IPART determined the efficient costs of delivering the dam. IPART applied an innovative approach in setting the prices for this determination with a Deferred Tillegra Dam Revenue Asset being added to Hunter Water’s RAB. IPART’s approach aimed to match the profile for regulatory depreciation and the return on assets in relation to Tillegra Dam with the utilisation of the capacity of the dam.

Hunter Water’s price structure is a combination of fixed and variable charges, with some distance related tariffs. The tariffs are determined using an Average Incremental Cost approach. The price control is set using a traditional building blocks approach, with assessments of efficient operating and capital expenditure.

2.4. Conclusions

IPART’s institutional structure and the context within which it carries out its price regulation functions is a mix of substantial discretion (balancing up to 12 different factors) and relatively high degrees of prescription (Ministers defining the Terms of Reference for enquiries or specifying that the efficient costs of certain investments should be included in a determination). IPART has some ability to use pass-through mechanisms where this is incorporated into the methodology for setting the maximum price. The use of re-openers is more restricted - it seems IPART can re-open a determination but once re-opened a complete de novo review may be required. In Section 3 we consider how IPART’s degree and nature of discretion compares with the approaches elsewhere in Australia and in other countries.

The other important contextual issue to note is that a significant number of the entities that IPART regulates for pricing purposes are owned by government organisations. As we discuss further in Section 3 this can have important implications for the incentives that the management of these companies face and how they respond to incentive based regulation. It may therefore affect the approaches that are most appropriate.

While each determination undertaken by IPART is industry specific and specific to the context in which it is set, IPART follows a broadly standard “building blocks” methodology for many of its determinations based on using RAB based price regulation.

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2 However, it should be noted that this is not exclusively the case. IPART also regulates private buses and ferries, as well as private taxis and private gas companies.
This can reasonably be characterised as the traditional approach to regulation. IPART’s determinations generally include some supplementary incentives related to issues such as service quality or outputs, but given the limitations on the use of re-openers and pass-throughs it is reasonable to consider that the structure of price regulation is less complex than approaches adopted in some other countries and sectors, such as the UK.
3. **KEY ISSUES FOR CONSIDERATION**

3.1. **Introduction**

In the first part of this section, we consider the main similarities and differences between IPART’s approach to incentive-based regulation and approaches adopted elsewhere in Australia and internationally. As well as undertaking a general overview we consider specifically the similarities and differences as they relate to examples with different degrees of competition and different institutional structures, including ownership.

We then evaluate in more detail a number of issues of particular interest to IPART given the issues it currently faces, and those issues that appear most interesting having identified the key similarities and differences. It is important when comparing regulators’ approaches to recognise that all regulators operate under different statutory provisions, which can limit the flexibility the regulator has to adopt particular approaches. Therefore, we have been particularly mindful, in discussions with IPART to understand if particular interesting approaches by regulators in other countries could be implemented under IPART’s statutory framework. When identifying interesting issues for IPART to consider, we are primarily seeking to identify emerging good practice that IPART may wish to explore further for future determinations.

The issues that are considered in more detail in this section are:

- Approaches to assessing the appropriate level of opex and capex, including involving final and intermediate customers in the decisions.
- The role of incentives to affect company behaviour, including particular issues associated with regulating publicly owned companies.
- Output and performance measures.
- Use of re-openers and pass-throughs.
- Use of general inflation or industry specific indices as part of the price control determinations.
- The extent of regulatory discretion.
- The treatment of wholesale electricity costs in retail price controls.

We briefly explain each issue, then consider IPART’s current approach and identify particularly interesting examples in other countries for IPART to further monitor or explore in the future in developing its own regulatory approach.

3.2. **Cross-sectoral comparisons**

This section discusses different approaches to incentive-based regulation to try and determine whether these differences are a result of the specific features present in a
sector or the level of competition in that sector. The information is drawn from the case studies we developed for a report for Ofgem’s RPI-X@20 project and the case studies developed by IPART and us for this project. Summary tables of these case studies are contained in Annex 5. These tables draw out some of the key features in relation to the general regime, capex, opex and service performance.

The comparison in this section is based around four tables:

- Overall regime – The key main features of each regime, including duration of price controls, extent of regulatory discretion and the use of re-openers and pass-through mechanisms. (Table A5.1)
- Capex - How capex is determined and the incentives that apply to the delivery of capex. (Table A5.2)
- Opex – How opex is determined and the incentives that apply to the delivery of opex. (Table A5.3)
- Service performance and output measures – What aspects of service performance and outputs are measured, and what incentives apply to their effective delivery? (Table A5.4)

3.2.1. Overall regime

Table A5.1 compares the overall characteristics of the regimes. Some broad conclusions can be drawn from this table.

Length of control

IPART’s price controls in respect of the case studies examined for this report are shorter in comparison with the other case studies presented here (a maximum of four years). However, we understand that the standard period of control for the energy and water sectors is generally five years. The application of multi-year price paths is new for the transport sector. IPART has tended to adopt shorter regulatory periods for the first multi-year determination in a sector due to the uncertainties that commonly exist.

The standard length of price controls in the UK and Ireland tends to be five years. The case studies for the US are examples of longer term price caps, albeit with re-opening provisions. For strongly monopolistic sectors a price control of at least five years is seen as balancing the need to provide a sufficiently long period for companies to identify and achieve efficiency savings, while not risking setting price controls that lead to windfall gains or losses for companies and customers. However, there are examples of other regulators applying similar length regulatory periods to IPART, including three years for Italy’s water sector and two or four years for gas transmission in France.

From the range of examples we have considered it is difficult to draw definitive conclusions about why particular regulators choose particular lengths of price control. However, there is some evidence that sectors subject to more competition (UK postal sector) tend to have shorter price control periods than largely monopolistic sectors. The examples of long term price controls in the US are unlikely to be appropriate to a sector such as electricity retail in New South Wales, where competition is developing and market conditions will change relatively quickly.

Form of control

IPART’s approach to the form of control involves setting a price cap or methodology for setting a price cap. Depending on sector, the caps may be indexed to the Consumer Price Index (CPI). This is relatively common across the regimes and does not seem to vary significantly with the sector or the level of competition. Rate of return regulation is also applied in a number of cases, such as for the Dalrymple Bay Coal Terminal in Queensland and the electricity cases in the US. It can also be argued that some of the examples that make relatively extensive use of pass-through, re-openers and ex post adjustments, can be seen to approximate aspects of rate of return regulation.

It is probably reasonable to say that for some sectors (such as Irish retail electricity) the incentive from regulation to achieve efficiency savings may be less important than from competition, and this could be reflected in the approach to setting the price control.

Measure of inflation

Most regulators are still using a general or consumer price index for inflation. Interestingly the more innovative and different approaches to this issue have tended to be found in quasi-regulated or contract environments that have a higher level of competition, such as the PPP Arbiter for London Underground with differential inflation adjustments and the Hong Kong bus contracts with an explicit wage index. Within a traditional regulated environment the New Zealand Commerce Commission and CER in Ireland for retail electricity use some indices other than general inflation.

The explicit use of alternative to general or consumer price inflation indices in determinations is a relatively recent development, but regulators are increasingly taking account of such indices when setting the price cap. Ofgem’s recent proposals for new price controls for the electricity distribution companies in the UK are an example of this, where extensive work has been undertaken to estimate inflation of input prices.4

Extent of regulatory discretion

We thought this was an interesting area to consider given the New Zealand Commerce Commission’s Input Methodologies approach and the rules within which the AER now operate. It is notable that while there is a strong right of appeal in the UK, there is also

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extensive regulatory discretion. Ireland is an example of significant regulatory discretion and no merits based appeal right. IPART has substantial discretion in the detailed methodology to set, but the Government can provide terms of reference and some directions for reviews.

Pass through or re-openers

Although the detail is contained in the individual case studies it is evident that there is very little consistency or commonality of approach to these components of determinations. Some regulators rely almost solely on a general ship-wreck clause, while others (Ofwat) make extensive use of specific item re-openers. Similarly for pass-throughs there are a range of approaches, from Ireland where they are used extensively to Ofwat who does not use them at all. The US examples of longer term regulation provide an ultimate form of re-opener in the ability at any time to ask for a new rate case review. It is difficult to identify specific reasons why regulators have adopted such different approaches, which may suggest that cultural factors, and indeed individuals within regulators, were important determinants of the approach. IPART’s legislation allows some degree of cost pass through where the mechanism for doing so is set out as part of the methodology for setting the maximum price for a regulated service. The IPART Act appears to rule out interim reviews that cover only part of a determination, except where these can be implemented mechanically without the need for discretion or judgement. It is also possible for IPART to re-open a determination where a complete de novo review occurs. This suggests that a ship-wreck clause may be able to be included but once triggered the review could not be partial.

The Irish retail electricity example shows how a regulator regulating a company in a competitive market has tried to deal with uncertain costs, i.e. wholesale electricity costs, without re-opening the price control regularly. CER has put in place an indexation approach so that the allowed wholesale costs adjust with movements in a pre-determined basket of wholesale price indices. We discuss later in this section some of the potential issues with that approach.

3.2.2. Treatment and incentives for capital expenditure

Table A5.2 discusses various elements of how capex is determined and the incentives that apply to capex. A number of observations can be made.

*Ex ante determination of the level of capital expenditure*

In general, the level of capital expenditure is determined *ex ante* on the basis of company estimates which are subjected to an assessment of efficiency. Efficiency assessments are made in a number of ways such as bottom-up assessment and benchmarking. It is beyond the scope of this review to consider all these approaches in detail, but it is not clear that IPART is out of line with emerging best practice in its approach. IPART lacks the advantage of some regulators (Ofwat and Ofgem) in being able to use comparative benchmarking as a key part of identifying the efficiency frontier, so will inevitably be more reliant on bottom-up analysis.
However, in recent years a number of different approaches have been applied. One such approach is including greater customer involvement (for example, Ofgem, Ofwat and CAA) and using new forms of incentives such as menu regulation or triggers. The QCA approach for the Dalrymple Bay Coal Terminal provides an interesting example to consider of how to involve major customers in such a decision. In general, the more monopolistic sectors seem to determine capex in a more traditional way. Sectors which are not capital-intensive lend themselves to being more competitive as the costs of entry are not prohibitive. This in turn means that capex is often not a particularly important element of determining costs in the more competitive sectors of regulated industries, such as electricity retail or postal services.

Government can sometimes have quite an important role in determining capex. In the UK rail sector the Government determines the outputs to be delivered by Network Rail, while the regulator considers the company’s plans for delivering those outputs. This is similar to the arrangements for IPART where the Government can specify that certain projects are included in the price control, but leaving it to IPART to assess the efficient costs of the project.

**Customer involvement**

In the monopolistic sectors, including water and rail, customer involvement is relatively limited and mainly occurs through public consultation during the pricing review. There are, however, exceptions to this with the UK water sector making extensive use of willingness to pay surveys. In those sectors with a higher level of competition customers seem to be more involved in the process. For example, in the case of Dalrymple Bay Coal Terminal expansion is automatically approved if it is consistent with the master plan and 60% of expansion is contracted and 60% of other users do not oppose. Similarly, in the electricity sector in the UK, capacity expansion investment for transmission is generally only approved with evidence of customer demand, including financial commitments. The airport sector in the UK also makes use of Constructive Engagement to encourage the airports and airlines to agree some requirements around opex and capex. We have also included a case study in Annex 4 discussing how customer engagement in the US and Canada can lead to negotiated settlements between utilities and consumer representatives.

There is a degree of controversy about how well some of the approaches to consumer involvement have worked, with very different stakeholder views about the success of Constructive Engagement for airports in the UK, although it would be fair to say that most stakeholders agree that it is better than without Constructive Engagement.

While the Australian case studies presented in this paper have limited consumer involvement, apart from the Dalrymple Bay Coal Terminal case, there are other examples in NSW where there is direct engagement between asset owners and users. This is in line with the general observation that customer involvement appears to be most successful where there are large customers that can be engaged with. In NSW, the rail access regime sees asset owners and users engage in discussions on the terms and conditions of access to infrastructure and in determining and evaluating future capex. Nevertheless,
there appears to be scope for IPART to take more account of approaches based on Willingness to Pay surveys and wider consumer involvement as we discuss later in this section.

Incentives

Of the cases presented for IPART, incentives are generally provided through *ex ante* efficiency and *ex post* prudency assessments. For passenger rail in NSW, there is a recommendation to cap government funding and this is seen as placing an additional onus on the company to contain costs. This can help avoid a situation where a company fails to work within the price cap and seeks additional Government funding if the regulatory will not re-open the price control. Other monopolistic sectors, including rail and water in the UK apply a range of incentive mechanisms. In particular, the UK water sector applies its price control on a rolling five year basis. There is also a plan to move to a menu system\(^5\) as part of the current ongoing price review. One innovation that seems well established across sectors is the use of rolling or longer term incentives. The US has implemented it through longer duration price caps, while other countries have used rolling incentives.

Until recently it appeared that a degree of consensus had emerged that capex was best incentivised through five year rolling incentives, and this approach was increasingly common around the world, although less so in Australia. However, recent years have seen some innovation and developments of this approach, although mainly for privately owned companies, such as Ofgem’s use of menu regulation.

Regulators that are regulating publicly owned companies do appear to tend towards lower powered incentives for capex, with some of the Irish examples approximating cost pass-through with extensive pre and post expenditure scrutiny to determine efficient expenditure. The French transmission example for gas is an interesting example to keep under review, as it is based on providing a higher cost of capital to provide an incentive for a majority publicly owned company to provide certain high priority capex projects. However, regulators may wish to be cautious about such an approach given that cost will be passed on to customers and the benefits of large capital projects, based on assumptions about future network needs, may be uncertain. Another issue which may require consideration is what happens to the higher rates that customers have paid when delivery of capacity is delayed. This is part of the reason why Ofgem has adopted requirements for strong financially backed signals from network users about the need for new transmission capacity on the gas and electricity networks.

*Ex post treatment*

In Australia, assessments of the prudence of capex appear to play an important role in the price control process. This role is less clear in other jurisdictions, irrespective of the level of competition in the sector. In the UK, there is limited use of *ex post* scrutiny due

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\(^5\) We explain menu regulation in more detail later in the report, but broadly it seeks to give companies a choice of capex allowances, with higher rewards for companies that more accurately forecast their capex requirements and that make greater efficiency savings.
to the structure of other incentives. In Europe *ex post* assessment also has a mixed role. For example, in Ireland, the CER applies *ex post* efficiency evaluation, however, other European countries do not apply such a policy.

In the state of Mississippi, price control of the electricity sector involves some assessment of the impact of general costs but this is constrained by the impact on prices. A number of state Public Service Commissions in the US make use of the used and useful test. This often forms part of an *ex post* prudence review. Using this test, capital investment can be included in the rate base where facilities are determined to be used and useful in providing utility service to customers. Where investments are considered to be excessive in terms of cost or capacity these can be disallowed.

### 3.2.3. Opex

Table A5.3 considers the issues associated with opex. It would be broadly reasonable to say that IPART’s current approach is consistent with approaches by most other regulators, and indeed opex is arguably the area of the regulatory settlement where there is greatest consensus amongst regulators around the world as to the appropriate approach.

#### Determining the level

Most regulators determine opex in a broadly similar way through consideration of historical expenditure and whether future levels of expenditure are likely to be different from historical levels. Some regulators that regulate multiple similar companies, such as Ofgem and Ofwat, make use of comparative benchmarking. There seems to be little variation in the approach on the basis of sectors or the competitiveness of the sectors.

#### Customer involvement

Customer involvement is limited across all sectors and levels of competition. In general, involvement occurs during the public consultation process. While Ofwat uses Willingness to Pay surveys most extensively to consider the need for capex, it also applies the considerations to opex to some degree.

#### Incentives

Most regulators treat opex in a similar fashion with an *ex ante* allowance and asymmetric treatment of under and overspends during the period of the price control. A number of regulators, including Ofwat, Ofgem and the Australian Energy Regulator use rolling incentives. This means that the regulated entity can retain any unanticipated benefits for a set period (e.g. five years) from the date the saving is made (rather than until the end of the price control period). More diverse approaches tend to be taken in those sectors that are not regulated in a traditional way. For example, franchised buses in Hong Kong are

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subject to a profit-sharing arrangement where companies retain 50% of profits (if the rate of return on average net fixed assets exceeds a fixed level). Ofgem’s proposal to introduce symmetric incentives for under and overspends of opex would be very unusual compared to other examples. It will be interesting to see whether there is any discernible change in the cost of capital allowed as a result of reducing companies’ exposure to opex overspends.

**Ex post treatment**

*Ex post* treatment of opex is not a feature of most regulatory regimes, although IPART does for some sectors assess the prudency of past opex in subsequent pricing reviews. Where regulators use *ex post* assessment of opex it is generally to inform the setting of opex allowances for the next price control rather than to claw back inefficient expenditure from the previous review. Ireland is one of the exceptions to this, and that may be linked to the public ownership nature of its regulated companies.

### 3.2.4. Service performance

Table A5.4 sets out approaches to the incentivisation of service performance.

**Performance measure**

Measures of service performance are used widely across the various sectors but the related incentives differ considerably. In the water sector, all regulators apply forms of service performance although some have more explicit output related measures than others. For example, the performance measures for the bulk water provider in NSW largely relate to the delivery of specific projects. By contrast, the water and sewerage services in Melbourne include factors such as supply reliability and customer service. In practice most regulated companies seem to have a range of performance measures some of which relate to inputs and some of which relate to outputs.

It is generally hard to identify examples of regulators who consider that they have developed a well rounded and balanced package of outputs, and instead regulators are often concerned that their output measures have insufficient focus on longer term indicators such as asset performance. Ofgem’s recent proposals for the electricity distribution companies in the UK are an attempt to address this issue. In particular, Ofgem has proposed that Distribution Network Operators (DNOs) will be required to deliver an agreed package of output measures in return for the revenue they receive from customers over the price control period. The output measures were proposed to include:

- **a load index (LI):** DNOs will be required to use established criteria to rank each applicable site from 1 to 5 where ‘LI1’ would be applied to sites with significant spare capacity and ‘LI5’ would be sites that are fully utilised and require intervention;
• a health index (HI): DNOs will be required to use established criteria to assign their assets a ranking from 1 to 5 based on an internal assessment, where ‘HI1’ represents an asset that is new or as new, with a low risk of failure and ‘HI5’ captures assets at the end of their serviceable life, requiring intervention; and

• fault rates – these will be used for specific asset classes where the DNO does not presently have HI capability and/or it is not economic to collect a full set of HI data.

**Incentive**

The incentives related to performance measures differ considerably but these differences do not seem to be intrinsically related to the sector or to the level of competition. IPART uses output measures as part of assessing the prudency of past opex and capex. In the water sector in the UK, about 0.5% of revenue is at stake for performance on service delivery failures. In some cases, Ofwat has also fined companies for failing to deliver on other performance aspects, including leakage levels. In the US financial penalties may also be applied. For example, in New York State penalties may be applied if satisfactory service levels are not met. Up to US$11 million in penalties can be applied to electricity system reliability. The energy regulator in Ireland has an incentive mechanism based on service performance. This involves penalties and rewards that arise from incentive mechanisms relating to the Public Energy Supplier (PES) call centre and the customer charter.

Perhaps the main difference for more competitive sectors is the mechanism by which penalties are paid. The UK postal sector, where there is some competitive pressure has an incentive for business mail users where any penalties for poor performance under the incentive scheme are paid directly to the customers concerned. Penalties for residential users are paid to customers through adjustments to future allowed prices. An issue that has been a key consideration of the ongoing electricity distribution review in Great Britain is the issue of symmetry within incentives – this is discussed in more detail in Section 3.5 of this report.

It can be difficult within the case studies to fully draw out the extent to which non-financial incentives also play an important role in a number of regulated sectors. The Overall Performance Assessment in the England and Wales water sector is widely recognised as providing incentive properties beyond the financial value at stake to the companies because it is viewed by a wide range of stakeholders as a league table to compare the performance of the companies, and their management. Similar reputational effects have arguably been seen in the UK postal sector, where during periods of poor performance Royal Mail’s management received significant negative publicity in the media, which may have reinforced the financial incentives for good performance.

**3.2.5. Summary**

Overall it is reasonable to say that IPART’s approach to regulation is a relatively traditional approach using what can be described as broadly standard approaches to
setting price caps. There are some exceptions to this, such as the consideration of externalities in the setting of prices for rail services (and potentially soon for metropolitan bus services). While not all the alternative examples from other sectors will necessarily be examples that IPART will want to explore further, there are some interesting alternative examples to consider, including regarding use of alternative inflation indices, incentives for efficient capex and consumer involvement in price reviews. We consider these issues further below.

3.3. Approaches to assessing the appropriate level of opex and capex, including involving final or intermediate customers in the decisions

3.3.1. The issue

All standard forms of incentive based regulation set an *ex ante* allowance for opex and capex as part of calculating the price control to apply. The broadly standard (and still widely used) approach for each issue can be described as follows:

- **Opex** – Review historical cost information to establish a business as usual (or base year) of costs, and consider evidence supplied by the companies as to whether the future level of costs will differ from the historical level. Regulators also generally make an adjustment to historical costs to account for future efficiency, which can be set by a range of techniques including benchmarking and bottom-up analysis.

- **Capex** – Review the business plan submitted by the company, primarily through bottom-up expert analysis (which may include use of engineering expertise). Apply an adjustment for achievable efficiencies, for which bottom-up analysis may be supplemented by benchmarking.

Benchmarking has tended to be used more successfully where a regulator is regulating many similar companies, e.g. UK water and energy sectors. Regulators have often struggled to make effective use of cross-sector benchmarking, although Total Factor Productivity analysis can sometimes be used as a form of cross-sector benchmarking.

These traditional approaches are generally adversarial and controversial because they involve the regulator reviewing and critiquing the company’s historical and forward looking costs. To the extent the company has a right of appeal it is then faced at the end of the price control review with effectively a “take it or leave it” single allowance for opex and capex to accept or reject. Companies often perceive that the best strategy is to submit a conservative or “padded” forecast of costs, and challenge the regulator to overcome the asymmetry of information issue to identify the efficient level of future capex. Arguably this incentive on companies is then reinforced by the *ex post* incentive to minimise actual spend, providing they do not face a significant risk that the regulator will claw back unspent money because outputs have not been delivered or service performance has been poor.

Although it varies in magnitude across sectors, this approach appears to be characterised by a persistent tendency for material gaps between company business plans and
regulators’ allowances, with companies often then also underspending the regulators’ allowances. The electricity distribution companies in the UK have underspent their capex allowance on average for all of their five year price controls since 1989.\textsuperscript{7} There is some evidence in recent years that labour cost pressures and other input price pressures have reduced the scope for companies to outperform opex forecasts. This has partly led companies to raise concerns that the use of a general inflation measures does not adequately take account of changes in their cost base, and particularly labour costs.

3.3.2. IPART’s approach

From the four case studies undertaken by IPART, and our wider understanding of IPART’s approach to determining opex and capex allowances, we consider it is reasonable to broadly characterise IPART’s approach as the traditional “take it or leave it” approach discussed above. We recognise that each determination undertaken by IPART will rely to different degrees on bottom-up analysis and benchmarking, although again our understanding is that the primary form of analysis is bottom-up engineering type analysis. The Government may require an entity to undertake a project and direct IPART to set prices to recover the efficient costs of that project where it involves major expenditure and policy commitments. For example, the desalination plant in Sydney and the Tillegra dam in the Hunter region, which are aimed at achieving higher water security for NSW residents. In these cases, the Government uses a formal transparent direction under section 16A of the IPART Act.

We understand that in general consumers or their representatives are not heavily involved in direct negotiations about the types of expenditure or cost that IPART allows in its determinations. Although given IPART’s statutory role to protect consumers from the impacts of monopoly, the interests of customers feature very prominently in IPART’s deliberations. However, as the companies regulated in the four case studies considered for this study are Government owned, it may be reasonable to note that the Government as owner of the company may take account of consumer as well as taxpayer interests when developing business plans. In addition, s15 of the IPART Act requires IPART to consider the protection of consumers from abuses of monopoly power, as well as the social impact of its determinations. While there is no direct determinative role for consumers, they still feature prominently in IPART’s deliberations. As part of the consultation process, consumers have a role in commenting on the proposed revenue allowance during the various stages of a review and can attend public hearings and workshops, as well as being represented through trade bodies. In the case of the subsidised rail sector, IPART divided recoverable costs between the State Government and service users.

3.3.3. Interesting examples from Australia and other countries

7 http://www.ofgem.gov.uk/Networks/rpix20/publications/CD/Documents1/Performance%20of%20the%20Energy%20Networks%20under%20RPI-X%20FINAL_FINAL.pdf
A lot of regulators still rely on the traditional approach, although the precise way in which they carry out that approach can vary. For example, Ofwat makes extensive use of cost benefit analysis, which considers both private and social costs, generally at different discount rates. This is particularly important for the assessment of expenditure with a large environmental component. Ofgem has tended to assess expenditure at a more aggregate level rather than on a project by project basis, except for major projects. Most other examples in our case studies appear to adopt relatively intrusive *ex ante* reviews of projects to determine whether they are required and what constitutes efficient costs.

We are going to discuss further two strands that are being pursued to affect the way in which opex and capex is determined, which are:

- The use of menu regulation by Ofwat and Ofgem; and
- The general move by a number of regulators to increase the customer involvement in determining what expenditure is required.

**Menu regulation**

In setting price limits for water and sewerage companies in England and Wales for the period 2010 to 2015, Ofwat has proposed to adopt a relatively radical alternative approach that builds on an approach called “menu regulation” that Ofgem first used for the electricity distribution companies (the DNOs) for their price control that runs from 2005 to 2010. Ofwat is calling this approach the Capital Expenditure (Capex) Incentive Scheme (CIS). Ofwat has adopted this approach in response to concerns that companies had been “padding” expenditure forecasts. Ofgem also adopted the menu regulation approach for the Gas Distribution Networks (GDNs) for price controls that run from 2008 to 2013, and called it an Information Quality Incentive (IQI). In this section we use the term menu regulation to generically refer to Ofwat and Ofgem’s approaches.

Menu regulation allows companies to “choose” a level of capex different from the amount identified by the regulator as required. Menu regulation combines the existing rolling five year incentives to deliver capex more efficiently than Ofwat and Ofgem’s allowances with a specific incentive to forecast capex more accurately and to choose lower capex requirements. The parameters of the menu are in general set to be incentive compatible so it should be in the best interests of each company to submit a capex proposal that best reflects its view of its capex requirements. The lower the level of capex submitted by the company the higher its incentive, and vice versa. Compared to the previous approach the menu is symmetrical so under and overspends are treated in the same way, whereas currently there are limited provisions for companies to recover overspends.

Under the menu, companies will recover their full capex outlays through adjustments to their regulatory capital value (RCV) at the end of the price control period, and receive rewards or penalties calculated as a function of their predicted and realised CIS/IQI
ratios. Ofwat stated that it would calculate the baseline as a “reasonable ‘central estimate’ of the expenditure needed to deliver a best value set of outputs, while taking a balanced view of risk.” This contrasted with Ofgem’s approach of seeking to set the baseline closer to the efficiency frontier, thereby expecting that most companies would choose a capex level above the baseline.

It is too early to make definitive judgements regarding menu regulation. Although initial evidence raises concerns about its likely success, the full implications of its incentives will take time to materialise. We see menu regulation as a good concept in principle that may succeed with time and greater understanding of how best to calibrate the parameters. Initial experience also suggests that regulators will need to give further thought to the implementation process for menu regulation. Part of the reason for our caution about drawing too many early conclusions about menu regulation is that the previous approach had significant shortcomings, so an appropriate test of menu regulation is whether it brings improvements compared to the counter-factual.

We discuss the water sector and then the energy sector experience, although for comparative purposes at times we discuss the energy sector experience in the water sector section.

**Water sector**

Determinations under the CIS come into force in PR09, the five year price control period starting in 2010. Full evaluation of whether the CIS has met it objectives cannot be made until PR09 is complete. However, a number of important milestones in its implementation provide some insight into how it is coming together so far:

- August 2008 - Companies submitted draft business plans for PR09.
- December 2008 - Ofwat published draft baseline judgements and the CIS matrix.
- April 2009 - Companies published final business plans.
- July 2009 – Ofwat published draft determinations, which included revised baseline judgements and a slightly updated CIS matrix.

Figure 3.1 compares the changes in company capex plans and Ofwat’s determinations between the price control review in 2004 and the process so far in 2009.

**Figure 3.1: A comparison of company capex plans and Ofwat’s determinations between PR04 and the process so far in PR09**

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8 The CIS/IQI ratio is the ratio of a companies’ proposed expenditure to the regulator’s assessment of an efficient or baseline level of expenditure.


10 The electricity distribution companies have not yet completed a full price control review subject to menu regulation, and this was the first price control to try the concept.

11 All figures are indexed to the draft business plan in PR04 and PR09, which are set at 100.
Compared to PR04 there has been a significant reduction between the draft and final business plans during PR09 of about 12%. However, the gap between the final business plan and Ofwat’s draft determination is larger in percentage point terms than for PR04. So at this stage it might be reasonable to conclude that CIS has at least partly contributed to some reduction in “padding” in company forecasts, but even after the introduction of CIS there remains a very large gap between Ofwat’s view and final business plans. These aggregate numbers mask much larger individual gaps for some companies.

For the final business plans, firms made a significant downward adjustment, a reaction both to draft baselines and the CIS matrix. This reduction is large in comparison to adjustments at the start of the current price control period. However, the initial increase in plans was significantly above the previous level of capex (as can be seen in Figure 3.2) and the majority of revisions came from only four companies, including a £1bn cut from Thames Water.
No company had a final business plan that was lower than Ofwat’s baseline. This is despite Ofwat’s indication that in a departure from Ofgem’s approach to menu regulation, it would set baseline figures at what it considered to be relatively achievable levels, based on some form of “average” efficiency, rather than at the efficient frontier as Ofgem employed. The closest company was Wessex for its sewerage business with a ratio of 103. For the WASCs the range for their water activities was from 107 (Yorkshire) to 131 (Southern and Thames), while for their sewerage activities it was from 103 (Wessex) to 140 (Southern). The WOCs had a noticeably higher range from 107 (Dee Valley) to 165 (Sutton and East Surrey). Four WOCs had a ratio above 155, and only four WOCs had a ratio below 130. We will consider further below some of the properties of the parameters of the CIS that might have contributed to these high ratios, but it is also notable that Ofwat reduced company business plans to take account of its view about the appropriate scope and outputs to be delivered, as well as the efficiency of the company. Companies have been very concerned about the approach Ofwat has taken to implementing menu regulation, and consider that it has moved significantly away from a mechanism that genuinely allows them a choice of capex levels.

These figures can be placed in context by comparison with ratios calculated as part of Ofgem’s menu regulation schemes. DNOs achieved an average ratio of 116 in 2005, with all companies placing themselves between 100 and 140.\textsuperscript{12} Gas distribution networks set ratios between 107.6 and 114.\textsuperscript{13} Ofgem’s initial proposals for the DNO’s price controls from 2010 set a baseline that is 87% of companies’ final business plans.\textsuperscript{14} This varies from 81% for Electricity North West to 94% for WPD South Wales. The contrast

\textsuperscript{12} The difference is particularly marked as the baseline used in Ofgem’s mechanism is defined to be that of an efficient firm, where firms break even on the inventive if they accurately predict capex 20% above the baseline.


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\textbf{Figure 3.2: Actual and projected net capital investment by purpose category}
with Ofwat’s ratios is particularly marked as Ofgem’s approach should have led to setting baselines at a more challenging level.

In what appears to be a reaction to the high ratios for some companies, Ofwat’s Draft Determination proposes that companies with a ratio of more than 130 will effectively be treated as if their ratio was 130 in terms of the *ex ante* revenue allowance, and will face an additional income penalty on the CIS matrix. This does not stop these companies spending whatever they consider they require, but they will be at a further financial disadvantage compared to companies with a ratio below 130.

An assessment of whether CIS has delivered improvements in the quality and accuracy of companies’ business plans in the water and sewerage sector requires consideration of the realistic counter-factual. In the water sector this has been a traditional take it or leave form of regulation, whereby the company submits its business plan and has to decide to accept or reject a single expenditure forecast from the regulator. It is probably going to require a number of price control reviews in the same sector before it is possible to reach strong conclusions about how CIS compares to the counter-factual.

High and varied CIS ratios provide at best limited evidence that CIS has reduced incentives to overstate expenditure plans, although only actual experience during the price control review will reveal how much capex companies’ actually spend. It is not completely clear why CIS does not appear to be better closing the gap between Ofwat and companies’ views, but there are several reasons why current ratios may be so high:

- **Baseline figures may not be representative** – When setting baseline figures the regulator is impeded by asymmetric and incomplete information. The observation that firms have little scope to change their submissions before final determinations and the incentives they face, suggests that they may be submitting accurate forecasts.

- **Learning effects** – Companies may choose to err on the side of caution when submitting their plans. Uncertainty around how the regulator will react or how the mechanism will function may generate the wide range of ratios observed. With greater experience of the CIS in practice, such effects should diminish. Although the evidence from the DNOs second price control with menu regulation does not necessarily support this view. Arguably the implementation of menu regulation is also moving away from offering genuine choices to companies about their final capex levels.

- **Insurance effects** – It is difficult for companies to accurately predict their expenditure over a long period of time. In a world of uncertainty, the CIS retains an incentive to overstate plans. Higher submissions receive smaller penalties for deviations, so if outcomes are uncertain, it may be rational to inflate bids. Company management may also perceive that it is better to be seen to out perform a slightly higher allowance than to under perform against a lower allowance, even if in both cases the outturn capex was the same.

It is clear that the CIS is not operating as Ofwat originally hoped and the new parameters for companies with a ratio of more than 130 illustrate this. In particular, it is clear that
CIS may be more difficult to implement effectively for WOCs where ratios are particularly sensitive given the large impact of each project relative to their small size. There is no evidence so far to indicate that the CIS is effective at cutting out significantly more padding from forecasts than the previous approach, but this can only be confirmed at the end of the price control period. Even then, it may need another five years to prove itself.

**Energy sector**

We have already discussed some of the lessons that can be learnt from the implementation of menu regulation in the energy sector.

Ofgem was the first UK utility regulator to introduce a form of capex menu regulation. The IQI (earlier known as the sliding scale incentive) was introduced to encourage electricity DNOs and gas distribution networks (GDNs) to provide accurate capex forecasts. Its first application was to DNOs over DPCR4 (2005 to 2010). Ofgem has recently issued Initial Proposals for the IQI to be carried over into DPCR5, and to incorporate opex.15

Evidence is available for the first three years of the IQI in DPCR4 and there may already be evidence that companies were overstating plans. By the end of the third year, DNOs had accrued total under-spend that would give them returns of £222m. There are signs that this figure will be eroded as they ramp up their expenditure over the final two years, but it is unlikely that they will meet their overall targets, netting them a positive return. The full five years of data are needed to paint the whole picture, so firm conclusions must wait until the end of the price control. However it appears likely that the IQI will not fully fulfil its objectives, and Ofgem has to some extent acknowledged this, although Ofgem has stated that it considers that the IQI was effective in reducing excessive business plan submissions from at least two DNOs during DPCR4.

In preparation for DPCR5 there has been a review of the IQI, exploring a number of options and learning from lessons of DPCR4. The most significant change has been the incorporation of opex into the IQI from 2010. Ofgem has principally justified this approach because of concerns that the different incentive values and parameters that apply to opex and capex at the moment have the potential to distort companies’ decisions, with a bias towards capex solutions and a lack of focus on the cheapest whole life solution.16 Ofgem has not justified the inclusion of opex in the IQI on the basis of the merits of the mechanism, although we presume it is comfortable that the mechanism is working well enough to be extended in this way.

In the early stages of DPCR5 there was extensive debate about the objectives of the IQI and its parameters. A number of companies considered that it worked relatively well and

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16 This is because companies are currently exposed to 100% of opex costs, while depending on where they are on the IQI exposure for capex is up to about 40%.
should be retained in its current form, while other companies were concerned that it was rewarding companies who had made conservative forecasts, and rewards for more accurate forecasts were not sufficient. Despite quite a vigorous debate the outcome has been to increase the incentive values for under and overspends compared to the companies’ forecasts, which Ofgem justified on the basis of better balancing the current incentives for opex and capex. The range of incentive values has increased from a range of 20% to 40% to a range of 30% to 50%. There has also been an increase in the additional income. Overall it is still early days for the IQI, and with only three years of concrete data for the DNOs and one year for the GDNs, much remains to be seen. Outcomes are likely to be sensitive to matrix parameters such that success in one area does not guarantee it in another. However, greater experience will help to improve the calibration of incentives across sectors in the future.

There is an interesting question for IPART about how applicable menu regulation will be for wholly Government owned companies. As discussed above, there already appears to remain significant conservatism in the forecasts submitted to Ofwat and Ofgem under menu regulation, and this could be exacerbated for publicly owned companies, depending on the incentives perceived by the management of the companies. We are also aware that whereas Ofgem and Ofwat have been concerned that companies tend to “pad” their forecasts of capex, the alternative concern has been an issue for IPART. Given these concerns, overall it would appear appropriate for IPART to continue to monitor the effectiveness of menu regulation before adopting it.

Customer involvement

The aim of more involvement of customers in regulatory determinations is a largely unobjectionable concept in theory, but raises many questions about how practical it is in effect. Many regulators have involved customers in decisions through a combination of consultation (used by IPART and many other regulators) and some Willingness to Pay surveys (used extensively by Ofwat). IPART does undertake periodic surveys of households to better understand their use of services and the profile of customers. However, the success of such approaches in engaging with meaningful customer representatives or ascertaining the real views of customers has been mixed. Even statistically robust surveys of consumers are only likely to include a very small proportion of the total customers of a regulated company.

We would encourage IPART to review Ofwat’s approach to Willingness to Pay surveys as a potentially very useful part of assessing companies’ expenditure plans for sectors that do not have competitive pressures, such as water. It has taken Ofwat some time to develop and improve the quality of its surveys, but working with the companies and the consumer representative body CC Water, the surveys are now regarded as providing high quality information to inform cost benefit analysis of companies’ expenditure plans, even though sample sizes are quite small compared to the total number of customers. Ofwat’s example shows how these surveys can be used when there are very few large
intermediaries or proxies for customers’ views. Ofgem also makes use of these surveys, but in a less extensive and methodical way than Ofwat.

As part of setting the future water and sewerage charges for 2010 to 2015, Ofwat (in combination with a number of stakeholders) undertook research to look at consumers’ views on the water companies draft business plans and the acceptability of the proposed outputs and bill changes. The questionnaire was designed to draw out customers’ views on the acceptability of a company’s draft business plans early on in the interview (when they were ‘uninformed’) and then again later when they had been given additional information. The survey covered 6,000 consumers in England and Wales. When provided with a short description of the various costs and benefits included in the draft business plans around 64% of customers thought that the combined water and sewerage plans were acceptable. However, just under a quarter of customers found them unacceptable and 7% found them completely unacceptable.

Companies received the information arising from the joint consumer research project in order to help them in developing and finalising their business plans. There was some response by companies to the consumer research, with a number of companies reducing the bill impacts of their final business plans, particularly where the acceptability of their draft business plans was low. In addition to the results being used by the companies, Ofwat used the results in setting draft price limits. In the case that customers expressed limited support for a company’s draft business plans, Ofwat carefully examined the justification for additional discretionary expenditure. Customers also expressed concern about the volatility of price limits and bills. As a result Ofwat re-profiled the price limits for a number of companies for the first two years of the price control period.\(^\text{17}\)

From surveying other regulators it is not clear that for sectors that are largely monopolistic and with few large intermediaries approaches other than Willingness to Pay surveys have been extensively used. Ofgem has established two interesting initiatives in recent years. First, a general Consumer Panel of 100 actual final consumers of energy, who are consulted from time to time on key issues. Second, a Consumer Challenge Group of consumer experts established specifically for the current price control review of the electricity distribution companies. It is difficult at this stage to observe the practical impact of either of these initiatives, and therefore difficult to evaluate their success.

The other aspect of consumer involvement that has developed significantly in some sectors and countries in recent years, can perhaps be better described as the involvement of major customers or intermediaries. Four examples can be considered:

- **Constructive Engagement in the UK airports sector** – Under this approach the CAA encouraged the regulated airports and the major airlines to share information and discuss expenditure requirements, with the conclusions of the process used as an input by the CAA for its price control review. There is a lot of debate about the success or otherwise of this initiative with different

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stakeholders having different views. However, it is reasonable to say that most stakeholders agreed that it was an improvement on the previous regulator led approach. It appeared to work best where there was some alignment of incentives between the parties, e.g. Heathrow airport, and less well where this alignment was largely absent, e.g. Stansted airport.

- User commitment in the UK energy sector – For many assets in the UK energy sector, and particularly on the transmission network, investments are only included in the companies’ Regulated Asset Base, if it can be demonstrated that there was a commitment from a network user to pay charges for a period of time, thereby signalling demand for the asset. Again there is debate amongst stakeholders about the success of this approach, but it is notable that the UK gas transmission network, to which this approach is most extensively applied, is largely unconstrained, and investments are built in about 3-4 years following user signals in long term auctions. Planning difficulties have made it more difficult to build electricity transmission assets on such a prompt timescale.

- User commitment for the Queensland coal terminal – This case study provides an example of a user commitment approach in Australia. More information is required to fully evaluate its success, but it indicates the types of characteristics required to apply this approach, and in particular the presence of large and well informed customers.

- Negotiated settlements – This approach has been used extensively in the US and Argentina. Precise details of how the approach is implemented vary between countries, but in broad terms major users or an appointed representative of customers negotiate with the energy companies to agree expenditure plans and funding timescales. If agreement can be reached the regulator does not need to get involved. There appear to be some examples of the successful implementation of this approach.

The difficulty for IPART with these approaches is the general absence in the sectors it regulates of large consumers or intermediaries who could get involved in the process. The AER, for example, may be better placed to adopt this kind of approach where it is regulating monopoly energy networks with a range of competing suppliers. It is possible that there may be some scope for IPART to apply these approaches in the water sector, particularly for SCA, given that it has got only a limited number of downstream customers. Also, some of the rail access determinations, such as the Hunter Valley Coal Network, might be able to benefit from such an approach. A further issue is that the government may direct companies to invest in projects to meet a policy objective. In such cases, companies are not the primary decision-maker and IPART does not have a role in determining the merit of a project. The government has issued directions in recent years for projects that have been publicly controversial and resulted in significant price increases. For the pricing determinations in question, customers’ views of the outputs and outcomes of these projects were taken into account largely outside of the pricing review process. Willingness to Pay surveys would not be suitable.
3.3.4. **Issues for consideration by IPART**

Menu regulation represents an interesting and innovative attempt to overcome the difficulties of asymmetry of information when assessing companies’ proposed expenditure. So far the evidence from the UK water and energy sectors is very limited as to whether it has been more successful than the previous approaches. However, we would encourage IPART to consider over the coming years the emerging evidence about its success, and therefore to consider whether it may have applicability in some cases for IPART. It is clear from the operation of menu regulation so far that the incentives of the company and the management appear to be very important influences on its success. Therefore, IPART would need to consider very carefully whether there might be issues with operating such an approach for Government or municipally owned companies, where management incentives may not be as clear as for privately owned companies.

In the first instance, we consider that it would be worthwhile for IPART to consider further whether the Willingness to Pay survey approach used by Ofwat is an approach that can be adapted to IPART’s work. While there will undoubtedly be material set-up costs for this approach it has the potential to yield very useful information to inform assessments of the benefits that customers are willing to pay for. This approach also better reflects the nature of the sectors IPART is regulating, where there are limited large customers or intermediaries. Approaches based on involving large customers or intermediaries would need to be carefully considered in the context of the sectors being regulated but could be useful in some circumstances.

3.4. **The role of incentives to affect company behaviour**

3.4.1. **The issue**

Some of the more intractable problems as regards incentive-based regulation occur in sectors where public ownership has been retained – indeed, the standard RPI-X approach was not designed for these circumstances. These problems can be exacerbated when the Government as owner is not as focussed on profit and equity growth as would occur under private stewardship.

The misalignment of incentives between owners and managers of firms when they are not one and the same is well known. The divergence of owners’ and managers’ incentives becomes particularly acute in the context of RPI – X regulation. RPI – X, also known as incentive based regulation, has as its central plank the requirement that regulators create and provide the firm with the correct and sufficient incentives to operate efficiently and invest in a timely and efficient manner. These incentive frameworks are designed with the equity holder in mind and are created so that a rational owner would act in a way that maximises the net present value of the company’s future revenue streams.

The inherent issue in this is that whilst the regulator seeks to create an environment that incentivises owners, it is *managers* who make the actual decisions. Thus the regulatory instruments developed can easily become blunted when:
• those expected to act upon the incentives developed are not themselves sufficiently incentivised to do so, e.g. due to a misalignment of interests between equity holders and management; and/or

• the objectives of the owners and managers are diverse and complex in contrast to the reliance of incentive regulation on the pursuit of financial objectives.

Compared with private sector companies where managers are clearly accountable to shareholders, it has been argued that managers can be more free to pursue their own objectives where the ultimate ownership of the entity lies with the Government. Although different types of accountability occur in the public sector, including potentially greater media and public scrutiny of business performance, accountability to Parliament and its committees, and scrutiny by the civil service or municipal administrators. Nevertheless, if managers have more freedom, this would make incentive based regulation even more difficult for a number of reasons as set out below. Perhaps most importantly, management is less incentivised because the penalties for failure are minimal and the rewards for success are smaller. Public sector managers are less frequently sacked, there is no real bankruptcy threat as even a poor performing entity can expect to be bailed out by the state (either explicitly or implicitly) and unless the government is prepared to use privatisation as a credible threat, the disciplines of the market for corporate control are also absent. On the other hand the rewards for success are also smaller. Public sector managers generally have smaller performance-based incentives and do not have an equity interest through share schemes. There is a large pool of private sector managers and broad assessment of managers based on financial performance of the companies they manage. Hence, good performance has a stronger more direct impact on opportunities in the future.  

3.4.2. IPART’s current approach

As far as we are aware IPART does not currently supplement incentive based regulation with any provisions that require the company or its management to have in place any specific additional incentives to align incentive based regulation with management incentives. There may also be questions about whether this is possible under IPART’s statutory framework. Therefore, the incentives faced by the managers of the companies that IPART regulates will depend on the Government and municipalities that own the companies.

3.4.3. Approaches from Australia and elsewhere

It has become increasingly common for regulated companies in the UK to implement management incentive plans (MIPs) that set out the types of incentives that should apply to management of regulated companies to align their incentives with the regulatory regime. MIPs are particularly important for those companies with non-traditional

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18 This is not to say the market for managers in the private sector is perfect – their failures are well covered in the financial press – but they are less imperfect than the market for commercial managers in the public sector.
financial structures or those still in public ownership. Increasingly it is becoming either a statutory requirement or an element of the operating licences for firms in this position to develop and maintain MIPs. Furthermore, there is increasingly a high degree of transparency being sought in these types of incentive packages. Transparency is achieved by greater specificity around objectives, targets and the way they are measured and these all feature in best-practice MIPs.

In what follows, we briefly provide comment on the MIPs for a selection of regulated companies with different ownership structures.

Network Rail

Network Rail’s MIP attempts to address both annual and long term objectives by including targets relating to both. The annual targets are based around:

- minimising train delay minutes;
- financial efficiency – an index measure of this is used to monitor the efficiency of operations, maintenance, track renewals and other key central expenditure (each with a one third weighting); and
- asset stewardship – an index measure reflecting the overall status of key performance indicators (KPIs) measuring the condition of the network.\(^{19}\)

Long term targets include:

- cost management through measurement of actual cost savings against target levels; and
- a Public Performance Measure (PPM), measuring train performance against planned timetables.

The current MIP is, in the first instance, targeted at the performance of senior management including the five executive directors. This then is intended to flow downstream by way of the General Bonus Scheme with different levels of rewards achievable for all employees based on the same basic performance criteria depending on the degree of out-performance against targets.

The Office of Rail Regulation (ORR), the regulator of Network Rail, considers that there are a range of incentives on the management of Network Rail to achieve outputs valued by passengers and other stakeholders, while recognising that the incentives may not be as strong as for a company quoted on the stock exchange.\(^{20}\) In addition to measures such as the MIP, the company’s history and key role in the rail network mean that the management are subject to strong reputational incentives for good performance.\(^{21}\) The

\(^{19}\) Network Rail, Annual Report and Accounts, 2006. The asset stewardship index is comprised of several elements, these are discussed in detail both in the Annual Report as well as ORR’s December 2003 Track Access Charges determination.

\(^{20}\) The activities of Network Rail are overseen by a group of members who receive no remuneration.

\(^{21}\) The media publicity after the difficulties with aspects of maintenance and upgrade work on the West Coast mainline, including overrunning engineering works, in recent years, illustrate this point.
Government has a very direct role in setting the outputs that Network Rail is required to deliver, and the role of ORR is primarily to assess the most cost effective way to deliver those outputs. However, the Government and Network Rail’s incentives with regard to the outputs to be delivered are constrained because the Government funds a substantial proportion of the expenditure.

While the difference might be marginal, it has been suggested that Network Rail would be more prepared to accept Government specified outputs with a social goal, even where the commercial case was weak. A private sector company, on the other hand, might want more assurances from the Government about the treatment of stranded assets that were created to achieve Government objectives. For private firms, this issue may be a particular problem where Government led environmental objectives differ to the expressed wishes of the consumer. For government-owned entities, where the profit-motive is absent, management is likely to be more focused on achieving outputs as this will have a direct impact on the reputation of the entity and its senior management.

\textit{Glas Cymru}\textsuperscript{22}

Glas Cymru is a 100% debt financed company limited by guarantee established to own and run Welsh Water, the water and sewerage company predominantly serving customers in Wales, but also providing bulk water to other companies in England. There is no explicit statutory requirement for Welsh Water to maintain an MIP, however, its Licence does place certain requirements on management similar to those that might be expected from an MIP and relates to the management of outsourced aspects of the business. Specifically these are:

- to ensure adequate systems of planning and internal control;
- to confirm the sufficiency of financial resources/facilities and management resources; and
- a requirement that all service contracts with associated companies contain adequate provisions relating to standards of service, so as to ensure that the appointee is able to meet all its obligations as a water and sewerage undertaker.

The mechanism for ensuring the above is the issuance of an annual certificate by the management to Ofwat.

In addition to these Licence requirements, Glas Cymru does have an MIP which was substantially revised in 2005. Under this revised incentive scheme, base salaries are such that the total remuneration package may be approximated to the median total remuneration of a comparator company with the remuneration committee determining the set of comparators (currently the quoted water companies and two electricity companies).

Similar to the Network Rail scheme, the plan has both an annual and long term (three year rolling) dimension to it. The annual component revolves around: i) the company’s

\textsuperscript{22}http://www.dwrcymru.com/English/library/Reports/companyreports/glascymru/Annual\%20Reports/2006/annualreport2006.pdf
position in customer service league tables; and ii) a financial component judged on out-performance against budget. The long term plan similarly has customer service and financial performance as targets and operates on a three year rolling basis with payouts to executive directors dependent on the number of target goals the company reaches.

The Government has a less direct, but nevertheless significant role in setting outputs, than in the UK rail sector. The Government provides guidance, along with the Environment Agency and Drinking Water Inspectorate, to Ofwat, as part of the price control process. This is broadly described as a quadripartite process, but unlike the rail sector, Ofwat is ultimately able to make the judgement about the scope and cost of the projects to be included in any price control determination.

While Glas Cymru has a different ownership structure than the privately owned UK water companies, its managers performance is and can be directly compared to the performance of these companies. This includes through the Overall Performance Assessment, which forms a “league table” of water companies’ performance, and is used by investors and others to rank the management of water companies, arguably leading to a greater focus amongst management on their performance under this incentive than the pure financial rewards on offer for the incentive would suggest was appropriate.

Scottish Water

The Scottish Water example is an interesting one where actions by the shareholder and regulator have tried to meet both the direct remuneration aspect of incentives (with bonuses for management – and a requirement that these can only be funded through unanticipated efficiency savings) - but also wider social/corporate responsibility aspects, reflecting the fact that management value their broader role in society.

With respect to the broader societal incentive, a discretionary investment fund has been established into which some of the unanticipated efficiency savings are placed. Something similar has been established in Network Rail. Although financial in nature, these types of incentives recognise that part of what may motivate managers in the public sector is a desire to be seen by the media and public as delivery a good service rather than purely maximising profits.

Royal Mail

It is a statutory requirement of the Postal Services Act 2000 that Royal Mail put in place a MIP. Further, the Act invests Postcomm with the authority to request information on:

- the linking of remuneration to performance;
- the performance measures used;
- how the objectives are to be measured; and
- the time period covered by the performance related remuneration.

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23 Based on Ian Byatt’s 2006 Hume lecture: Balancing Regulation and Competition in the water business in Scotland.
The Act also requires any further MIP requirements featuring in the Licence to be met by the company. However, no further requirements appear to have been made.

With regard to directors’ incentive schemes the annual measures to be used are: i) annual operating profit before exceptional items; and ii) quality of service (with the quality measures as specified in the licence). Royal Mail’s annual reports explain the broad nature of Director’s remuneration schemes and performance against those schemes.

Although Royal Mail’s service quality is linked to financial incentives, this and the wider performance of the business are heavily scrutinised by the UK Parliament, media and public, such that the management arguably has relatively strong non-financial incentives to perform well. This has perhaps most clearly been seen in the past when poor service quality performance has been prominently reported in the media.

**Canadian National Rail**

Prior to privatisation in 1997 Canadian National Railway (CNR) was the larger of the two Canadian rail infrastructure companies. The government of the day set CNR the very specific objective of reducing its operating ratio from 88% by 6% to the level of its competitors/comparators – the seven main US rail companies being seen as the most appropriate. Failure to achieve the target level of ratio by the year 2000 would have resulted in managers being denied some of the benefits of the share option scheme that had been put in place. In consequence, this created a strong incentive on management.

**Overview**

Despite the growing popularity of MIPs, in practice it is, in many cases, simply too early to say definitively how effective their introduction has been. A previous generation of ‘performance contracts’ on state-owned enterprises was not thought to be successful and some private sector incentive schemes based on share price performance and options have come under heavy criticism.

Nevertheless, provided they are carefully designed, these financial incentives to management (and sometimes employee) performance should, at least in theory, be able positively to influence managerial behaviour. However, it is still not clear whether, in practice, there are countervailing incentives and influences. In addition, since such schemes have tended to be introduced as part of a package of reforms, it can be very difficult to identify the specific results attributable to management incentive schemes.

It would appear that they have, at the least, improved transparency and clarified the owner’s objectives. In this sense, even if nothing more than this is achieved, they act as a positive discipline not just on management but owners themselves, especially when the owner’s objectives may be ambiguous. But, this is the minimum. In practice, where well-designed, they seem to have made a marked improvement in the performance of the company.

In addition to the incentives provided to management through MIPs, consideration may need to be given to the ownership structure of a regulated entity as this can have a bearing on the extent to which managers are incentivised to achieve set outputs. In the
UK, there has been some suggestion that Network Rail’s managers are provided with some incentive to achieve output measures due to the negative impacts that would otherwise arise for their reputation. Similar arguments have been made for Royal Mail’s management.

### 3.4.4. Issues for consideration by IPART

The examples of regulators roles in management incentives show that increasingly for companies without a private profit maximising incentive, regulators are considering how to better align the incentives from the regulatory regime with those faced by management. The circumstances of each company need to be considered separately, and particular consideration should be given to the incentives that already exists through factors such as reputation etc. The Government or municipality that owns a company will have particular views on this issue, but there may be a role to improve the impact of incentive based regulation through better alignment of regulatory and management incentives. Strengthening the governance regimes to better align the incentives of boards and managers with clear service quality and financial performance objectives may be even more critical to the improvement of performance. Hence, the Better Services and Value Plan announced in the NSW State Budget may have important implications for the design and effectiveness of IPART’s regulation.

### 3.5. Output and performance measures

#### 3.5.1. The issue

Incentivising activity can be achieved through a focus on inputs, outputs or outcomes. The strongest incentives for a company and the consequent impact on consumers is achieved when outcomes are considered. However, the problem with defining outcomes means regulators have been forced to consider outputs (the direct impact on an intermediate measure) or often to focus just on inputs. Clearly companies have the least incentive to innovate or develop alternative approaches when inputs are the focus of regulatory incentives. This sub-section considers:

- the use of outcome and outputs by regulators for incentives;
- the forms of incentives used and their impact; and
- the level of incentive, including the degree of asymmetry.

#### 3.5.2. Output measures

Although many regulators express a desire to focus on outcomes or outputs the reality is that few have been able to establish appropriate measures and consequently have not progressed substantially beyond high level quality of service measures with regard to developing output measures. Ofwat has probably the most advanced set of measures, some of which are changing and are described in the following section. Table 3.1 explains some of the current work on output measures.
### Table 3.1: Approaches to developing output measures

<table>
<thead>
<tr>
<th>Regulator</th>
<th>Approach to output measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ofgem</td>
<td>A licence condition on the transmission companies requiring them to develop output measures. The electricity distribution companies are being required to develop output measures as part of their price control review. We discuss below how this work has progressed so far. Ofgem has reported good progress on both of these initiatives, but detailed results have yet to be published.</td>
</tr>
<tr>
<td>ORR</td>
<td>The UK and Scottish Government’s specify outputs they are prepared to fund. After consideration ORR finalises the detailed outputs with Network Rail. Some of the output measures can be in the form of specific projects to be delivered, while others are more clearly outputs such as reduced delays, for which inputs to achieve the output are required to be determined.</td>
</tr>
</tbody>
</table>
| Ofwat     | Ofwat sets output requirements for each water company. Examples of the requirements for Thames Water Utilities include:  
- Ensuring there was no deterioration in service to customers or in the level of compliance with all environmental consents and licences. Meeting changes in demand for water service from both new and existing customers.  
- Promoting the efficient use of water by customers and ensuring that leakage is kept at the economic level. |
| OPPPA     | The parties agree a benchmark range of performance levels for each of the measures of performance. The Notional Infraco receives bonuses for outperforming the ‘upper end’ of the quality benchmark, but must pay a charge for underperforming compared to the ‘lower end’ of the quality benchmark termed the unacceptable performance benchmark. The Arbiter has no specific powers to monitor the quality of performance during the review period unless requested to provide guidance or direction by one of the PPP parties. Examples of output measures include:  
- Capability: measured through outcomes such as reduced journey times as a result of major line or signalling upgrades.  
- Availability: measures the ‘in service’ performance of the infrastructure measured through the reduction of delays.  
- Ambiance: reflects the condition and cleanliness of trains and is determined through mystery shopper surveys.  
- Service points: provides a measure of the number of breakdown in assets such as lighting and cameras at stations that might affect customers. |

The work underway as part of the current electricity distribution price control process for Ofgem is an interesting example of how output measures can be developed, but since the measures are coming from the companies a key part of the process has to be tested before any financial incentive is incorporated.

ORR provides an interesting example which may be highly relevant to IPART given the ongoing state ownership and involvement in the transport sector. The process for the provision of outputs is decided by the Government and then costed by the regulator.

### 3.5.3. Forms of incentive and their impact
Establishing incentives for performance are a key way that regulators encourage positive actions from companies. Performance incentives are often focused on quite specific elements, such as losses in electricity, but possibly with an overall limit on the exposure of the company (this is discussed further below). The impact of the incentive is likely to be both:

- financial; and
- reputational.

The reputational aspect can be very important and is something that Ofwat has developed to a high degree. Ofwat’s Overall Performance Assessment (OPA) is a good example of a set of performance incentives within an overall limit. The performance measures range from general performance type measures (leakage, low pressure, unplanned interruptions), customer focused measures (responses to billing contacts, responding to written complaints, telephone contacts) and longer term issues (water restrictions). Effectively they are focused on reliability and responsiveness. Each measure is awarded a maximum number of points and the points are tallied and then applied to a range of financial incentives equal to -1% to +0.5% of revenue for the first year of a determination (so the financial impact is felt just once every five years).

Figure 3.3 illustrates the evolution of OPA scores since the mid-1990s and shows that the measure has been successful in encouraging positive responses – although anecdotal evidence from the industry suggests that it is the peer pressure and reputational effects that have been most important.

**Figure 3.3: Impact of OPA in the English & Welsh water and sewerage industry**

This increase in OPA scores has been driven by various factors including:

- a reduction from 1.6% of properties in 1990/1 to only 0.02% in 2008/9 being at risk of low pressure;
- a reduction in leakage by 35% from its peak in 1994/5; and
• a significant increase in environmental and quality standards captured through measures like the number of Blue Flag beaches – now 72 compared to 12 in 1987.\textsuperscript{24}

Of course, it is not only the OPA that has led to these improvements, but it is a factor.

For the next price control period Ofwat has announced a shift in its OPA with a move to a Service Incentive Mechanism (SIM) currently being consulted on. The proposals are for this measure to be a measure of customer experience incorporating:

• quantitative measures – such as the number of complaints at different stages of the complaints process; and

• qualitative measures – based on a survey of customers who have had direct contact with their company.

Ofwat is proposing to keep the financial incentives the same as for OPA but stress that with the planned expansion of competition in the industry there should be real-world pressures to improve customer service.

3.5.4. Levels of incentive and the degree of asymmetry

How much revenue have regulators exposed to quality of service improvements? Amongst the examples that can be considered are:

• Ofgem for electricity distribution in 2005 – Up to 4% on the downside, but no explicit upside cap, although in practice there is a maximum level of performance that could theoretically be achieved, i.e. 100% performance, and there is probably a “realistic” level of performance that could be achieved without disproportionate additional expenditure;

• Ofwat’s OPA 2004 - The potential range was from 0.5% to -1%, with actual rewards between 0.4% and -0.1%. Although the percentage amount of revenue at stake for the OPA is relatively small, the reputational impact of ranking companies in this way is perceived as potentially significant as shown above;

• Postcomm for Royal Mail’s regulated services in 2006 – Up to 5% downside and no upside. The incentive for Royal Mail is asymmetric, with Royal Mail facing a reduced allowed revenue or having to pay compensation to customers for each percentage point that quality of service performance is below target, up to a maximum of five percentage points; and

• CAA for NATS air traffic control services in 2006 – Up to 6% overall exposure. It is difficult to make a precise estimate of the total exposure, but 6% appears to be a broadly reasonable estimate. There is up and downside compared to a target.

\textsuperscript{24} Information taken from the August 2009 Ofwat consultation paper: Service Incentive Mechanism – a consultation on moving forward from the overall performance assessment.
What is interesting is the range of exposures – Ofwat is quite conservative with only 1% of revenue at risk while Ofgem’s 4% and the 5% and 6% at risk for post and air traffic control respectively are more aggressive.

An issue that Ofgem has been focused on during the current EDPCR5 review is the degree of asymmetry in an incentive. Asymmetry can take two forms:

- the theoretical exposure to positive and negative revenue risks; and
- the actual exposure based on the way in which the incentive has been established.

Asymmetry is important because it creates possible upside, or downside, for the company. Further, if the measure is something that could be affected by general macroeconomic influences then asymmetry could impact on the required rate of return. In broad terms if incentives are in practice asymmetric in the scope they provide for companies to out perform the price control, then other things being equal, the companies actual return will be expected to be higher than the allowed cost of capital, unless the allowed cost of capital reflects the asymmetry of the incentives. Regulators will always find it difficult to set precisely symmetric incentives given the asymmetry of information with the regulated company and general uncertainty about future performance. Nevertheless, if a regulator has an explicit policy to set asymmetric incentives or in practice tends to set such incentives then there is a strong argument that it should adjust the cost of capital so that risk adjusted rate of return for the owners of the company is appropriate. There is evidence in a number of regulated sectors that regulators have tended to set asymmetric incentives that have allowed significant out performance by regulated companies.

For example, as part of the EDPCR5 process Ofgem has been considering the incentives associated with losses. Under the DPCR4 incentive for losses there was no cap or floor on revenue exposure and was the most generous in terms of the rewards earned by the DNOs (a total reward of £316.5m for the period 2005-2008). Key changes to the incentive for DPCR5 included making the target the average of the previous five years rather than the previous 10 years and for this to be calculated on a more consistent basis across DNOs as prescribed by Ofgem. Further, as with the other DPCR5 incentives, the incentive to beat the target has been strengthened. In this instance from £48/MWh in DPCR4 to £60/MWh for DPCR5 (although this is due to an increase in the EU ETS cost of carbon rather than a particular Ofgem policy).

With tougher targets in place for DPCR5, however, Ofgem is proposing to introduce a cap and floor to limit DNO exposure to annual variability. The limits will be determined by +/- 0.5% * the DNO’s DPCR4 average units distributed (MWh) * the loss incentive value (£/MWh) * 5 (for the five year rolling retention). While not applying this to allowed revenue it does create an incentive that is similar (and a consequent cap that is similar) since the cap is based on the physical units distributed in the previous price control period but the company is not penalised or incentivised if other costs unconnected to losses have changed and so increased revenue for the next price control period.
3.5.5. Issues for consideration by IPART

The key observations for IPART are:

- best practice in terms of output definition are weak but developing - a collaborative approach may make sense when implementing output regulation and a very clear hierarchy is important when Government is involved. If the Government is involved in the output setting it is important to be clear whether it specifies the output or merely offers advice, and furthermore, if the Government is involved in the funding of the output its role in determining cost efficiency needs to be clearly articulated. If this hierarchy is not clear there is a risk that the independence of the regulator is undermined;

- relative exposure of revenue to performance risk is unclear – the degree of conservatism may arise from the impact on profitability but the largest exposures come for sectors where the greatest sensitivity to volatility exists owing to the small regulatory asset bases; and

- the degree of asymmetry needs careful consideration – again there is no clear regulatory precedent as to whether positive or negative asymmetry (or even symmetry) is appropriate. What is important is to be clear about the actual exposure to asymmetry rather than the theoretical. This can then feed through to ensure an appropriate risk adjusted rate of return is set.

3.6. Use of pass-throughs, re-openers and trigger mechanisms

3.6.1. The issue

Many regulators use some form of pass-through and/or re-opening mechanism to address risk and uncertainty. Including these measures provides some comfort to regulated entities that they will not bear the costs that arise due to events that are beyond their control. The reduction in uncertainty about such costs would be expected to lower the cost of capital and hence bring benefits to consumers. In reality, while such measures are thought to be part of regulatory best practice in some circumstances the particular method of application and the events which are covered has varied considerably between regulators. There are some legislative limits placed on IPART’s ability to apply cost pass throughs and re-openers, however, they are still an important tool for the regulator.

IPART has no legal power to amend its determinations and therefore once a determination has been made it must stand until it is replaced by a new determination. However, there is some scope for the inclusion of cost pass throughs where the mechanism for doing so forms part of the original determination and each of the statutes under which IPART operates allows this to some degree. Where considered appropriate, IPART generally includes a cost pass through mechanism in the methodology for setting
the maximum price for a monopoly service. The mechanism is required to provide a high level of certainty as to:

- The type of cost to be passed through;
- How the cost is to be identified and quantified; and
- The means of calculating the impact of the cost pass through on the maximum price set for the monopoly service.

The IPART Act appears to rule out most types of re-openers. For example, interim reviews that cover only part of a determination or adjustments relating to pre-specified events or triggers would be excluded, except where these can be implemented mechanically without the need for discretion or judgement. However, if a company faced dire financial straits or its circumstances changed significantly to render a determination no longer appropriate, IPART could make a new determination. This happened in the case of Sydney Water Corporation in 2008 at the request of the Government due to significant changes in the company’s forecast capital expenditure as a result of new Government priorities. Hence while it is possible to re-open a price determination, it may be that once re-opened a complete de novo review is required.

3.6.2. IPART’s current approach

IPART considers the use of cost pass-throughs on a case-by-case basis in order to tailor these mechanisms to the regulated entity’s particular circumstances. A review of the case studies presented in this paper indicates that IPART has been reluctant to include cost pass through mechanisms in its recent determinations under the IPART Act. Reasons for these decisions have varied. In the current determination for CityRail fares, applying from 1 January 2009 to 31 December 2012, IPART noted that most of CityRail’s costs were likely to be within its control and therefore that cost pass-through was not warranted. However, it did note as part of the determination, that if there were events that were both financially substantial and unforeseen at the time of the determination, it would consider a re-opening of the fare determination.

Similarly, no pass through was provided for the Sydney Catchment Authority (SCA) in IPART’s 2005 determination. The SCA had previously pumped water from the Shoalhaven River at a relatively high cost and sought a pass-through if this were to occur again during the control period. IPART chose not to include a pass-through mechanism as Government policy had set a three-year moratorium on pumping from the Shoalhaven.

The NSW Hunter Water Corporation determination considered whether pass-throughs were appropriate for the costs associated with Australia’s proposed national emissions trading scheme. Given that the impact of this was considered to be on energy purchase

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25 The word ‘generally’ is used because the operation of cost pass through mechanisms can differ slightly under the IPART Act and other Acts under which it makes its determinations. In addition, terms of reference for a retail electricity determination may also require that a determination include a mechanism to pass through specified costs.
costs and energy is supplied to Hunter Water under long-term contracts, IPART determined that costs should not be passed through.

IPART has made greater use of cost pass-throughs in determinations under other Acts. An example is IPART’s 2007 determination for NSW Electricity Retail Pricing. In that case, network charges were to be fully passed through as were the costs associated with regulatory or taxation change events that were unanticipated at the time of the determination. For the period 2010 to 2013\textsuperscript{26}, regulatory events could include:

- Additional or changed obligations related to green energy or energy efficiency introduced both at the State or the Federal level;
- A Retailer of Last Resort (ROLR) event (the cost of which will be influenced by the national and NSW ROLR frameworks); and
- One-off NEM charges (such as reserve trader or direction events).

In its recent recommendations for taxi fares and private ferries IPART included a mid-year adjustment for variations in fuel costs in excess of a pre-determined percentage.

In addition to IPART, the Australian Energy Regulator (AER) chose to allow nominated pass-through events in its 2009 determination for NSW Distribution Network Service Providers (DNSPs). The AER included two broad types of pass-through events, including ‘specific’ events which would cover certain foreseeable events, such as a smart meter event, and a ‘general’ pass-through for unforeseeable changes falling outside normal operations. Pass-through events in this case may be positive or negative.

The IPART Act does not provide explicit scope for reopeners. Hence, under the IPART Act, adjustments are limited to those of a mechanical nature (i.e. not involving discretion or judgement) consistent with an application of a methodology for the determination of prices under the IPART Act. As an example, the NSW Hunter Water Corporation determination included a methodology to adjust prices in the last year of the determination in the event that the construction of Tillegra Dam was materially delayed resulting in under-expenditure of 50 per cent or more of the project. However, few, if any, other ‘re-openers’ have been included in determinations under the IPART Act.

3.6.3. Interesting examples from Australia and other countries

Pass-through

Many price controls contain provisions that allow full or partial pass through of costs that are considered to be wholly or largely beyond the control of the regulated companies. These arrangements involve an automatic adjustment without further involvement of the regulator. In the UK, Ofgem uses pass-throughs for costs such as business rates and licence fees. ORR has a pass-through for traction electricity costs. However, not all UK regulators use such mechanisms. In particular, Ofwat and Postcomm do not have any pass-through mechanisms.

\textsuperscript{26} IPART is currently undertaking a pricing review for 2010-2013.
The examples from other countries also indicate a mixture of approaches. The Irish energy regulator has moved to a regime based on partial pass-throughs for a number of cost items, including business rates. This approach recognises that the company may have some ability at the margin to influence these costs. The French energy regulator’s latest gas transmission price controls also include a combination of full and partial pass-throughs.

While there is no clear consensus from the examples about when and how to use pass-throughs, there is an increasing trend to move away from full pass-throughs. This recognises the fact that there are very few costs that are wholly beyond the influence of the regulated company and may be an issue for IPART to consider in deciding on including pass-throughs in future determinations. However, it is notable that IPART already appears to actively consider cost controllability when deciding whether to apply pass-throughs. The practice in other Australian jurisdictions is also mixed in this area. The Essential Services Commission in Victoria does not use pass-through mechanisms while regulatory determinations for retail electricity in Western Australia and ports in Queensland do include cost pass throughs. The Australian Energy Regulator may also include specific and general pass throughs in its determinations.

Re-openers

Most price controls for network utilities in the UK and elsewhere include some form of mechanism to re-open the price control. In general, re-opening provisions are asymmetric – they address circumstances where unexpected additional costs arise. As in the case of pass-throughs, there are a number of different mechanisms, although these can broadly be classified into three categories, including:

1. General ship-wreck clause – in this case the price control can be re-opened if the company is in material financial difficulties due to events that are beyond its reasonable control. Postcomm and ORR are examples of regulators which use this approach in the UK.

2. Interim review during the period of the price control – here the regulator allows the company to request a review of some or all aspects of the price control after a certain period. This may reflect that there is particular uncertainty about the costs of certain items over the period of the price control. For example, the airports sector in the UK allows an interim review of price caps.

3. Pre-specified events or triggers – this involves the regulator specifying, when the price control is set, the cost items for which it will consider re-opening the price control if these items vary significantly from the allowance, with the amount of allowance often specified.

These types of re-openers are not mutually exclusive and could be applied at the same time. For example, Ofwat uses pre-specified events and a general ship-wreck clause for the England and Wales water sector. As in the case of cost pass-throughs, there is no standard approach to considering the re-opener issue and no clear evidence of an emerging consensus about the best approach to take.
The approach used in New York state for gas and electricity provides an interesting alternative approach that is based on analysis of overall returns rather than specified cost items or events. In New York the approach is used to prevent “excess returns” being earned, but it could in theory be used to identify when a company was in financial difficulties. Given that IPART seems to be limited to re-opening a price control when the total package is to be considered, rather than one specific element, this approach may be a useful one to consider.

The potential advantage of such an approach is that the price control would only be re-opened if the company was in overall financial difficulties, so if one cost item was significantly higher than planned, but this was offset by lower costs for other items there would not be a re-opener. In contrast re-opening for specific cost items can lead to companies receiving additional revenue even when they are out performing the overall price control. There are a number of potential disadvantages, including measurement issues, potential perverse incentives for companies to trigger or avoid triggering the re-opener, and companies’ bearing some risks that are largely outside their control within the parameters of the triggers for re-opening.

Another alternative approach to re-openers has been the use of triggers by the CAA relating to the large investment in Terminal 5 by BAA. This case study below shows some of the risks associated with an asymmetric trigger for price control re-opening.

**Box 3.1: Asymmetric trigger for Heathrow airport Terminal 5**

Perhaps more than other regulated sectors, airport investments are heavily affected by environmental and planning consents. This can lead to significant delays to completing projects. Delays to the development of Heathrow Terminal 5 are a good example of this. During the third quinquennium (ending March 2003), BAA had an asymmetric interim determination clause relating to possible delays to the consent and construction of Terminal 5. Rather than utilize this option (which was only open to the company), BAA made voluntary price reductions in the second half of the price control period. It was not clear that this provided a full rebate to the pre-payment revenues received during the third quinquennium. The Competition Commission considered whether some ex post revenue clawback should occur, despite its concerns that this would undermine the incentive properties of RPI-X regulation. Recognising this approach had not worked, the CAA and Competition Commission developed milestone linked negative triggers for Terminal 5 for the fourth quinquennium.

*Source: The Regulation of Investment in Utilities: Concepts and applications, Alexander & Harris, 2005*

There are other examples of triggers including in the Irish gas context where the timing for operation of a major new pipeline is uncertain, and through cost drivers for new entry capacity on the UK gas transmission network.

The IPART Act appears to rule out interim, reviews that cover only part of a determination (see (2) above) or adjustments for pre-specified events or triggers (see (3) above) except where these can be implemented mechanically without the need for discretion or judgement. It is possible for IPART to re-open a determination but once
re-opened a complete de novo review may be required. IPART’s ability to re-open a determination and make a new determination is comparable to having a ship-wreck clause.

3.6.4. Issues for consideration by IPART

Given legislative provisions there are limitations to the lessons that IPART can learn about the use of re-openers within price control reviews. It appears that IPART already considers carefully the merits of pass-throughs based on an assessment of cost controllability, which appears to be a best practice approach to these issues. In addition, IPART effectively has a ‘ship-wreck’ clause in place, given that it has the power to make a new determination when circumstances have changed so as to render a determination no longer appropriate.

3.7. Use of general inflation or industry specific indices as part of the price control determinations

3.7.1. The issue

The current macroeconomic climate has put into sharp focus the inflation element of the RAB based incentive regulation. Typically in RAB based regulation, in the form of CPI-X (or RPI-X in the UK), a single headline measure of inflation is used for three distinct purposes:

- indexation of the RAB to preserve its real value (subject to depreciation and capex) consistent with the use of a real rate of return
- as a proxy for future increases in costs in nominal terms (i.e. unless shown otherwise costs are assumed to increase with general inflation in the coming regulatory period)
- as the base for the indexation of prices during the regulatory period.

The use of a general inflation measure to the RAB is consistent with the concept of financial capacity maintenance (FCM). That is the RAB is adjusted to maintain the real value of the initial investment by the owners. If operating capability maintenance (OCM) were adopted the RAB should be indexed by a index of the cost of capital equipment and assets relevant to that sector. This would maintain the value of the asset base in terms of the service it provides. Generally the FCM concept appears to prevail and a general inflation measure is used to index the asset base. Similarly the use of general inflation measure as the base for the indexation is widely accepted.

Whether the default assumption that non-capital costs will increase in line with general rate of inflation is appropriate is open to considerable question in practice. First, regulated companies face cost pressures on a number of inputs that are likely to differ not only from an average household consumer’s basket of goods but also from each
other. For example, it is reasonable to expect that wage inflation will bear little resemblance to fluctuations in the spot price of copper or steel. Second, even if a single index is appropriate, what are the implications about the choice of index.

The first issue can be addressed through correctly allowing for real input price inflation\(^\text{27}\) in inputs in the forecast financial modelling. This relies, however, on perfect foresight, unlikely in benign conditions and extremely unlikely in the prevailing inflationary uncertain times. When this is combined with the use of the general price indexation as a base for future adjustments of prices it increases the scope for ‘gaming’ of the cost forecasts. Alternatively, it is possible that the regulator is allowed to use an alternative index, or basket of indices as the basis for price adjustments during the regulatory period. This reduces the need to forecast relative price increases for the specific components. But this may be at the expense of a less transparent and well-understood price adjustment process during the regulatory period.

IPART, under s14(2) of the 1992 Act, “may fix [a maximum price] by reference to:

- a general price index (such as the Consumer Price Index), or
- the government agency’s economic cost of production, or
- a rate of return on the assets of the government agency.”

This apparent flexibility, created by the use of “may” means that IPART can consider alternative approaches, something that it has done and which is discussed further below.

3.7.2. Interesting examples from Australia and other countries

A number of regulators have recently considered measures to address the issue of differential and uncertain inflation of inputs relative to CPI. Ofgem’s December 2008 discussion paper and further work early in 2009 considered this issue while OPPPA is looking at this as a possible option under the London Underground PPPs. The goal being to reduce the risk (given the volatility of input prices in recent years) faced by the company should prices differ from forecast.

The issue has also recently been considered by the AER. In setting maximum prices for electricity distribution networks, the AER assessed the methods, data sources and forecasts used by the distribution companies in relation to input cost increases. The purpose of the AER’s assessment was to ensure that the effect of expected economic trends on metals prices and labour costs—key inputs for the energy sector—were fully factored into regulatory determinations. However, the particular measure of inflation used by the AER for the relevant ten-year period used the central bank’s inflation forecasts for the first two years and the mid-point of the central bank’s target inflation range for the remaining eight years. The AER considered that this provided the best estimate of the 10-year inflation forecast to be applied in the post-tax revenue model.

\(^{27}\) By real input price inflation’ we mean input price inflation corrected for nominal headline inflation. For example, if wage inflation is forecast to be 5% and CPI forecast to be 3% then real wage inflation would be 2%.
In relation to the consultation undertaken by Ofgem for its current price control review of the electricity distribution companies, the key issues related to:

- how to best form an expectation of general and specific price inflation;
- whether costs are controllable and consequently whether protection for a company is necessary; and
- what options there are for providing protection against uncertain non-controllable costs.

The main options identified in the Ofgem consultation to address the issue are:

- **Re-openers**: whereby the price control is effectively re-opened (or a portion thereof) and a new allowance set. How the re-opener is defined so as to minimise regulatory risk and concerns of an interim mini price control review are key to whether this approach addresses uncertainty or creates additional uncertainty.

- **Pass-through**: whereby non-controllable inflation costs are simply passed through to consumers. This eliminates any risk to the company but also removes any incentive to control specific cost inflation and consequently only tends to be used when truly non-controllable cost items exist (although some regulators choose to make either just the price per unit or the number of units a pass-through rather than total cost).

- **Indexation/triggers**: whereby if input inflation moves beyond a bounded limit for a specified period of time it triggers a resetting of the opex allowance for that input. This creates incentives to control costs while also providing protection against underlying cost volatility. This approach is used by the ORR for some costs.

In addition to the above we believe regulators could also consider two other possible solutions:

- **Insurance**: whereby the regulatory allowance for building blocks that are subject to material price inflation is “aimed high” to allow for fluctuations in input prices; and

- **Regulatory return**: whereby the risk borne by the regulated company due to input price fluctuations is reflected in the allowed WACC – through either a standalone uplift or an increased asset beta.

While each of the approaches have advantages and disadvantages, it is possible to see that:

- an insurance or an additional return based approach would be beneficial to the company if it expected prices to fall or become less volatile in the future but this

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28 The boundaries ensure that short-term volatility does not trigger changes in revenue, rather only underlying material and sustained changes have an impact.
would be at the cost of higher ex ante prices for consumers and the risk that significant upwards volatility in costs would expose the company to costs exceeding the “premium” received;

- triggers and re-openers can both retain incentives for the company to minimise costs while protecting against material movements in input prices. Customers will pay higher prices but are likely to demand that no “headroom” or “aiming-high” in terms of costs is allowed when establishing the base line, so reducing the initial revenue for the company. Given the uncertainty created by re-openers and the increased regulatory burden we believe that automatic triggers are preferable if this type of approach is adopted – the choice of this approach would be driven by continuing uncertainty about the size and direction of movements in input costs; and

- pass-through should only be used for those items where there is no management controllability whatsoever.

A further issue that should be considered is whether it is opex or capex that is being considered. Opex costs, especially labour costs, are likely to be relatively predictable. Nominal wages tend to be “sticky” and consequently a deviation between headline inflation and wage inflation can occur. Whether other costs should be considered for some possible adjustment system will depend on the size/materiality of the cost item and its controllability. It is interesting to note that although nominal wages are viewed as sticky, no regulator that we are aware of has, to date, allowed a control that would adjust labour input costs if a fall in CPI takes place – this may be that a falling CPI has not been a consideration for the last two decades and even now it is possible that while it may occur for a year or two, on average over the whole price control a positive CPI is likely. The only close example we have found is in Ireland where the CER, the energy regulator, allowed the option for the impact of a national wage agreement to be factored into the electricity transmission determination.

In relation to capex the choice would seem to be simpler. Indexation/triggers would allow protection against unexpected increases in costs while ensuring that the company is not provided with additional income that might not be necessary. Capex may, however, also be more susceptible to other forms of uncertainty which can require other solutions – discussed in a separate section of this report.

We are aware that *prima facie* the options presented above represent something of a departure from what might loosely be termed the standard regulatory approach to inflation, at least in Western Europe. There are some regulatory precedents that can be considered, these are summarised in table 3.2 below. It should be noted that one of these precedents is from IPART, but not one of the determinations discussed in more detail in this report.

*Table 3.2: Precedent from other jurisdictions*

<table>
<thead>
<tr>
<th>Regulator</th>
<th>Sector</th>
<th>Index used</th>
<th>Covering</th>
<th>Basis</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPPPA (UK)</td>
<td>Rail</td>
<td>Weighted basket of</td>
<td>All costs</td>
<td>Ex ante</td>
<td>A lump-sum adjustment is made for each year of the price control period</td>
</tr>
</tbody>
</table>
based on a weighted average of the difference between the input price inflation a notional operator of the Underground network is expected to incur and the forecast inflation rate of the index to which the control mechanism is indexed.

<table>
<thead>
<tr>
<th>IPART (Australia)</th>
<th>Transport</th>
<th>Specific costs indices for each service type</th>
<th>Overall price cap</th>
<th>Ex ante</th>
</tr>
</thead>
<tbody>
<tr>
<td>The regulator has developed specific indices which are seen to be representative of the unique costs each type of transport operator is subject to. The price limit for each service is adjusted annually in accordance with the observed change in the corresponding index over the previous 12 months.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORR (UK)</th>
<th>Rail</th>
<th>Infrastructure Output Price Index (IOPI)</th>
<th>Renewals expenditure</th>
<th>Ex post</th>
</tr>
</thead>
<tbody>
<tr>
<td>An annual logging up mechanism, subject to a 1% materiality threshold, is applied to renewals expenditure, which accounts for any substantial deviations in the cost of inputs relative to the index to which the revenue allowance is indexed and ex ante-determined adjustments for expected input price inflation and efficiency gains.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport Advisory Committee / Chief Executive (Hong Kong)</th>
<th>Buses</th>
<th>Composite Consumer Price Index (CCPI) and Wage Index</th>
<th>Opex</th>
<th>Ex post</th>
</tr>
</thead>
<tbody>
<tr>
<td>The supportable fare adjustment includes a component for the change in the wage index as well as the change in the CCPI. The wage index used is the nominal wage index for the transport sector published on a quarterly basis. Staff costs are considered to contribute about 50% of the operating costs of a bus franchise.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commerce Commission (New Zealand)</th>
<th>Gas</th>
<th>Operating Expenditure Price Index</th>
<th>Opex</th>
<th>Ex ante</th>
</tr>
</thead>
<tbody>
<tr>
<td>The operating expenditure price index is made up of the cost of labour (62%) and the Inputs All Industries component of the Producer Price Index (PPI) (38%).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ofwat (UK)</th>
<th>Water</th>
<th>Construction price index (COPI)</th>
<th>Capex</th>
<th>Ex post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant deviations in COPI were one of the items that could trigger an interim determination (IDOK). Was important in the early 1990s.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.7.3. Issues for consideration by IPART

The current macro-economic environment has focused regulatory attention on an issue that has always existed – the role of the measure of general inflation incorporated into the overall regime.
It is clear that IPART does already use some alternative approaches to indexing costs which capture industry specific costs and the fact that they deviate from CPI. However, in the cases considered in the main part of this report it is clear that this is not universal across all determinations. Regulatory practice outside Australia is mixed with:

- some use of pass-through to handle uncertainty and non-controllable costs;
- some use of insurance type approaches for some uncertain costs – especially finance related and to an extent capex related (when contingencies are allowed);
- use of re-openers for some specific cost items; and
- some use of non-standard indices.

The latter point is where IPART has tended to focus and is worth further consideration for some of the other regulated sectors. However, the other approaches can also provide useful regulatory tools in some circumstances.

3.8. The extent of regulatory discretion

3.8.1. The issue

Regulatory discretion is something that every regulatory regime has to address. There is always a desire to provide as much certainty to investors, companies and consumers as possible while ensuring that the regulator has sufficient flexibility to respond to future events. This is because:

- certainty is important as it allows companies to minimise the cost of funding and customers can budget/plan consumption and related investments with knowledge about future costs; while
- flexibility is important as it allows a regulator to respond to changing circumstances.

Figure 3.4 illustrates the forms of mechanism or process available to limit regulatory discretion and the relative impact it has on flexibility.
3.8.2. Interesting examples from Australia and other sectors

Recent regulatory decisions have again focused on the degree of regulatory discretion with one regulator being mandated by its Government to establish a low discretion environment – the Commerce Commission in New Zealand, discussed below. There are, however, good examples of regulatory guidance that can be considered – one of which is from IPART itself (see box 3.2).

Box 3.2 – The IPART guidance

In 2001 through a letter to the CEOs of distribution companies, IPART provided guidance on how it would assess prudence when thinking about investment decisions. Specifically, it would expect investment decisions to be consistent with good industry practice, including:

- Current and projected capacity;
- Current conditions of assets and renewal requirements;
- Alternatives of contracting for support through demand management and distributed generation (taking into account emerging trends in technology and costs);
- Current safety standards for the distribution network and accepted planning standards;
- Current and foreseeable policies in regard to factors such as environmental requirements and contestability;
- Current demand and reasonable projections for demand; and
- Analysis of the risks attached to the above elements.

Source: Tribunal Guidance on Prudency Test for Capital Expenditure by Electricity Distributors, IPART, 2001

This guidance from IPART was focused on how one specific process would be addressed – something that regulators in other countries like Ireland have also provided to help address specific uncertainties. It is also possible for regulators to provide more general guidance on the whole regime – consider the CAA’s detailed annex provided at the last determination and summarised in Box 3.3.
Box 3.3 – The CAA regulatory guidance

At the recent CAA determination of Heathrow and Gatwick charges, the CAA provided an Annex, titled ‘Regulatory Policy Statement’. This policy statement was an update of a document issued by the CAA in 2003. The second section of the document provides a forward looking statement about Q5 (the fifth five-year price control period from April 1st 2008 to March 31st 2013) and beyond.

The statement covers key issues such as:
- the allowed rate of return;
- the development of future capacity; and
- the mid-term review of investment.

In relation to the cost of capital, the CAA stated that it would expect future assessments, including of the cost of equity, to strike an appropriate balance between reflecting changing circumstances and maintaining regulatory consistency so as to deliver investment required to meet users’ needs.

It also proposed that a mid-term review of capital expenditure be undertaken. The proposed scope for this review (subject to consultation early in Q5) is:
- development and application of cost benchmarks to the Q5 capital investment plan and, prospectively, to the initial development of capital plans for Q6 and beyond;
- application and evolution of risk allowances for projects;
- progress in management of certain risks at airport investment portfolio rather than individual project level, and implications for setting future risk allowances;
- BAA’s consultation performance against its revised agreement on information disclosure and consultation (Annex G to this decision document); and
- at Heathrow, consultation on, and efficient delivery of, preliminary capital expenditure associated with the expansion of airport capacity via mixed mode operations and/or a third runway.

The CAA anticipates consulting on the scope of the review in summer 2009, and then conducting the review between April and December 2010.


More detailed and binding regulatory commitment can also be provided - the development of the Input Methodologies in New Zealand is one example and the production of some of the Australian Energy Regulators documentation is another. In the case of New Zealand there has been a process to update the Commerce Act 1986. The Commerce Amendment Act 2008 introduced significant changes to parts 4, 4A, 5 and 6 of the Commerce Act 1986. The objective of the review was to ensure that the regulatory provisions promoted the long-term benefit of New Zealand consumers and to reinforce the Government’s objectives surrounding infrastructure investment.

The most relevant change resulting from the amendments is the requirement for the Commission to determine upfront input methodologies for services regulated under Part 4 of the Act (as amended). Currently these are electricity lines, gas pipelines, and specified airport services. Examples of methodologies that are required to be established
by the Commission include cost of capital, valuation of assets, allocation of common costs, treatment of taxation and pricing methodologies. Input methodologies are required to be established by 30th June 2010.

Under the updated Act, the purpose of the input methodologies is described as being to promote certainty for suppliers and consumers in relation to the rules, requirements, and processes applying to a particular regulation. As an example, Box 3.4 below sets out the Commerce Commission’s draft guidelines to estimating the cost of capital. However, it should be noted that these guidelines were prepared prior to the recent amendments to the Commerce Act 1986 and revised versions were published during the summer of 2009 along with the significant Input Methodologies Discussion Paper. These Guidelines (once finalised) will apply to all sectors regulated by the Commission, including telecommunications and dairy, which are regulated under separate pieces of legislation. Therefore, these Guidelines will not be an “input methodology” but the input methodologies relating to the cost of capital for the services regulated under Part 4 will be consistent with these Guidelines.

Box 3.4: Draft Guidelines for estimating the cost of capital

- To derive the cost of capital for a firm, the Commission calculates its weighted average cost of equity and debt (the weighted average cost of capital – WACC).
- The Commission estimates the cost of equity using a simplified version of the Brennan-Lally Capital Asset Pricing Model (CAPM).
- The risk-free rate is used in the calculation of the cost of debt and the cost of equity. The Government bond rate is used as a proxy for the risk-free rate. The term of the risk-free rate is intended to match the regulatory period to ensure the NPV = 0 principle holds. Further, the Commission considers that rates should be averaged over a period in order to smooth any abnormal effects.
- The Commission relies on the direct estimation of the asset beta of the firm in question and the analysis of comparators’ asset betas. To select comparators, the Commission seeks to make use of firms that face a similar level of systematic risk, and considers a number of factors, such as the characteristics of the industry and the regulatory environment.
- The cost of debt is estimated for the same period as that used to determine the risk-free rate. The cost of debt is determined as a premium over the risk-free rate.
- Applying the parameter values estimated by the Commission, it may be possible to derive a WACC with an associated statistical distribution.
- The Commission notes that the consequences of finding excess returns when they do not exist, or setting prices too low, are more severe than the contrary error. The Commission therefore generally chooses a WACC equal to or above the mid-point to reflect this asymmetry in risk. The particular margin adopted for an industry is a matter of judgement for the Commission.
- In the past, the Commission had not adjusted its estimate of WACC to account for the potential costs arising from asymmetric risks, financial distress, extinguished timing options, or firm resource constraints. The Commission considers that firms are best placed to assess the extent of such costs and that the burden of proof lies with them.
- The Commission’s preferred treatment of any relevant unsystematic risks is through adjustments to cash flows, rather than through a margin on WACC. Adjustments can be made ex ante or ex post, depending on the circumstances.

3.8.3. Issues for consideration by IPART

This may be an area for IPART to monitor going forward, although we acknowledge that IPART has used quite detailed regulatory guidance in the past and IPART is generally careful not to bind the decisions of future Tribunals. The fact that state ownership is still important for most of the sectors that IPART regulates does mitigate some of the need for greater certainty from the company perspective – but consumers could still benefit from more certainty and predictability. The developments in New Zealand, Australia (with the AER) and some sectors in the UK and Ireland (especially airports) provide examples of where greater certainty can be provided. Of course, the greatest benefit of this is that investors would be provided with more certainty and that is less of a concern for several of the sectors that IPART regulates, owing to the continued significant role for government ownership. However, there are also benefits for customers and these should not be ignored.

At this stage we would not recommend that IPART adopted an approach that significantly reduced regulatory discretion, as we can see many risks to such an approach, particularly as any guideline or input methodologies will never be able to address all potential situations. Although there may be areas, such as the approach to determining the cost of capital or the form and impact of customer engagement, where greater detail could be provided to allow for more certainty while retaining sufficient regulatory discretion. The work of the New Zealand Commerce Commission provides a very useful case study to monitor over the coming years, to see how effective such an approach can be, and what issues and difficulties arise with implementing it. If it is seen to be successful then not only but other regulators and Government’s may wish to consider moving further in that direction.

3.9. Including wholesale electricity costs in price control determinations

3.9.1. The Issue

A particular challenge that IPART faces is how to estimate wholesale electricity costs for inclusion in the price caps for the three incumbent standard electricity retailers that are competing in the electricity retail market. Wholesale costs are by their nature volatile, at least in the traded markets. For example, some companies may choose to secure most of their power under long term contracts, while other companies may choose to leave themselves relatively exposed to shorter term markets. New climate change mitigation initiatives are also likely to be introduced during the next regulatory period. This adds to the costs of generation.

If IPART sets the allowance too high then to the extent that the companies have residual market power they may be able to make profits that are above a competitive level at the expense of customers. Conversely, if IPART sets the level too low it limits the incentive for new entrants and squeezes existing competitors even if they are more efficient than
incumbents. If costs were set too low for a long period of time it could also cause financial difficulties for the incumbents.

3.9.2. IPART’s current approach

IPART currently makes an estimate of wholesale costs, and to the extent they vary in practice from the estimate the effects described above will occur to some degree. For the new determination the wholesale costs will be estimated along with the related environmental incentives.

3.9.3. Alternative approaches

We are aware of three broad approaches to addressing this issue in other regulated contexts, which are:

- **Regulate the final retail price including a bottom-up estimate of wholesale energy costs (broadly the current IPART approach).** California is an example of how this approach can go catastrophically wrong if the regulator is not prepared to allow retail prices to rise when wholesale energy costs rise. France is also an example where the Government has a role in regulating some final retail prices, and this can lead to political temptations not to let retail prices rise to fully take account of wholesale price increases. A perhaps more successful example of this approach was for British Gas in Great Britain during the early stages of domestic retail competition. In this case Ofgas made an estimate of British Gas’ wholesale gas costs based on its long term contracts and some view about shorter term market purchases, and included this within the price control. This seemed to work reasonably well, probably because wholesale market conditions were quite benign and British Gas’ contract prices were above prevailing market prices, so headroom was available for competitors to enter.

- **A pass-through of wholesale costs, subject to an economic purchasing obligation.** In this case the regulator would only be regulating the margin and retail specific costs, assuming network charges were also an effective pass-through. Offer in the Great Britain electricity sector is an example of this type of approach. The advantage of this approach is that retail prices can move up and down in response to changes in wholesale energy prices without the need for a new price determination. However, it also draws the regulator into considering what constitute optimal splits between long term and short term contracting, whether contracts were value for money at a particular point in time, etc. The evidence is that UK regulators have found economic purchasing obligations often challenging to implement. This approach can at times mean that effectively the regime is a pass-through of actual costs because of the difficulties of concluding that at the time the purchasing decisions were made they were sufficiently sub-optimal to be declared uneconomic.

- **Linking the wholesale price element of the retail tariff to wholesale market price indices.** This approach is used by CER in Ireland. In a similar way to the
pass-through/ economic purchasing obligation, the regulator does not make an *ex ante* estimate of wholesale energy costs, but links the allowed costs to forward spot prices from published indices. Again the advantage of this approach is that retail tariffs can adjust for changes in wholesale market prices without a specific new price determination. However, to implement the approach with confidence would probably rely on having a reasonably liquid index or set of indices to use as reference prices. CER use a basket of spot and forward indices to implement the approach. In our view CER seem to have found a very complex way of implementing the option.

Under all three options a decision has to be made about how often consumers’ prices are adjusted. Broadly this has to be a balance between allowing sufficiently regular adjustment such that prices reflect actual market conditions so there are not barriers to entry, the need for the company to finance its activities by recovering its costs, and for consumers not to face unreasonably volatile prices. It is difficult in advance to say what the appropriate time period is, but where wholesale prices are quite volatile the period is probably shorter than for more stable wholesale prices. There is also a danger that if prices are not changed regularly with volatile wholesale markets the price signals from those markets are unduly suppressed for final consumers.

3.9.4. **Issues for consideration by IPART**

There is no unambiguously best way to address this issue, and all three of the approaches discussed above have shortcomings. IPART’s current approach relies on the regulator being prepared to intervene when there is a serious risk of adverse consequences arising from the cost level that has been allowed for. Given the increased volatility in energy prices, IPART is re-visting its current approach. The incentive properties of a pass-through/ economic purchasing obligation are probably limited given the practical difficulties of concluding *ex post* that particular contractual decisions were inefficient. Therefore, arguably the best option is a form of indexation, but only if an approach can be found that is simpler than that used in the Irish retail electricity sector.
4. CONCLUSIONS

IPART’s current approach to regulation has worked relatively effectively over a long period of time, and while it is good practice to review approaches from time to time, it is also appropriate to be somewhat cautious about changing approaches without reasonably clear evidence that any change will lead to an improvement in outcomes.

This report shows that there are a range of interesting approaches being adopted by regulators all over the world, some of which may have relevance for IPART, but others which probably reflect the specific circumstances of the regulator in question. In a number of cases it is difficult to identify whether recent changes to regulatory approaches, such as menu regulation, have led to improvements in outcomes for customers, while in other cases, such as more consumer engagement in price control reviews, there probably have been improvements in outcomes, but the precise approach to adopt is likely to be case specific.

Section 3 and Annex 5 consider in detail the similarities and differences between IPART’s current approaches and those in the case studies. Section 3 then goes on to consider some specific issues of interest to IPART. Distilling all of this analysis into some overall conclusions is not easy, but we consider there are some specific areas and examples that IPART may benefit from exploring further in the future as it develops future price control reviews, including:

- **Greater use of consumers and their representatives in price control reviews**
  - The Dalrymple Bay Coal terminal in Queensland is an example in Australia of greater consumer involvement, while the US and Canada includes examples of direct negotiation between utilities and consumer representatives. The CAA in the UK has made use of Constructive Engagement to facilitate discussions between airports and airlines. These approaches are generally used to inform regulators about the nature of capex and to some degree opex, that customers are willing to pay for. However, the structure of the industry will be important in determining the applicability of these approaches, and IPART will need to consider their use carefully on a case by case basis. The range of approaches being adopted by other regulators should provide IPART with plenty of case studies to review in the future when deciding whether to change its approach.

- **New incentives for capex** – Regulators continue to consider how best to provide incentives for efficient capex. While most regulators adopt an approach based on ex ante scrutiny with rolling incentives, Ofgem and Ofwat have recently introduced menu regulation, which aims to combine incentives for companies to accurately forecast capex ex ante, while spending it efficiently ex post. It is not immediately clear whether menu regulation would be effective for the Government owned companies that IPART generally regulates, but it may be worthwhile to consider in the future whether there are some aspects of the incentive properties of menu regulation that IPART could use.
• **The use of pass-throughs and re-openers** – IPART’s statutory remits appears to create some limitations on its ability to use pass-throughs, and in particular re-openers. In many regulated sectors these tools are seen as standards ways to allocate and minimise risk, with customers taking some risk associated with re-opening price controls in return for a lower cost of capital. Given legislative provisions there are limitations to the lessons that IPART can learn about the use of re-openers within price control reviews. It appears that IPART already considers carefully the merits of pass-throughs based on an assessment of cost controllability, which appears to be a best practice approach to these issues. In addition, IPART effectively has a ‘ship-wreck’ clause in place, given that it has the power to make a new determination when circumstances have changed so as to render a determination no longer appropriate.

• **Use of inflation indices other than general or consumer inflation** – This is an interesting new development in response to concerns that the input costs of regulated utilities were not closely related to measures of consumer or general inflation. The Commerce Commission in New Zealand, Hong Kong bus regulation, the arbiter for the London Underground PPPs and the Irish retail electricity sector are recent examples that have used indices other than general inflation as part of determinations. It is probably too early to evaluate their effectiveness.

Most of these issues may fall into the category of monitoring their effectiveness in other circumstances, before deciding whether they are appropriate for adoption by IPART in some form.