



Independent Pricing and Regulatory Tribunal

Review of regulated retail tariffs and charges for electricity 2010-2013

Electricity — Draft Methodology Paper
August 2009



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Invitation for submissions

IPART invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by 18 September 2009.

We would prefer to receive them by email <ipart@ipart.nsw.gov.au>.

You can also send comments by fax to (02) 9290 2061, or by mail to:

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We may choose not to publish a submission – for example, if it contains confidential or commercially sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please indicate this clearly at the time of making the submission. IPART will then make every effort to protect that information, but it could be subject to appeal under freedom of information legislation.

If you would like further information on making a submission, IPART's submission policy is available on our website.

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1 Introduction

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is currently reviewing regulated retail electricity tariffs and charges in NSW, and will make a new determination for the period 1 July 2010 to 30 June 2013.

In July 2009, IPART released an issues paper that outlined its proposed approach for this review, set out its preliminary thinking on key aspects of this approach, and invited stakeholders to make submissions in response to the paper.¹ Since then, IPART has received and considered these submissions, conducted additional analysis and sought and considered expert advice on key aspects of the approach. As a result, it has further developed its proposed approach and preliminary thinking.

1.1 What is the purpose of this paper?

The purpose of this draft methodology paper is to set out IPART's more detailed preliminary thinking on a particularly challenging step in the proposed approach for this review: analysing the major retail costs an efficient Standard Retailer will incur in supplying small retail customers on regulated tariffs over the 2010 determination period. It also looks at specific elements of the regulatory framework, including the periodic review mechanism. This paper does not cover all issues associated with the regulatory framework or costs, but focuses on the more technical and substantive aspects that IPART is seeking specific comment on. The draft report will address all relevant issues. More specifically, this paper discusses IPART's preliminary thinking on:

- ▼ establishing the energy purchase cost allowance
- ▼ establishing the retail operating cost allowance
- ▼ establishing an appropriate retail margin, and
- ▼ addressing each of the risks and uncertainties involved in forecasting the above costs for the 2010 determination period.

¹ IPART, *Review of regulated retail tariffs and charges for electricity 2010 – 2013 - Issues Paper*, July 2009.

1.2 Why is analysing the costs of an efficient Standard Retailer so challenging?

It is important that IPART provides an appropriate allowance that reflects the costs an efficient Standard Retailer will incur in supplying small retail customers on regulated tariffs. This is because IPART will set the level of regulated tariffs so they will generate sufficient revenue for the retailers to recover these efficient costs over the determination period. If IPART's estimates prove to be materially different from the retailers' actual costs, it could have a detrimental impact on consumers, the Standard Retailers and the development of effective competition in the state's retail electricity market.

If the cost estimates are too high, customers who remain on regulated tariffs will pay more than necessary to recover the efficient costs of supplying them, contrary to the objective of regulating retail electricity prices. As an economic regulator, IPART's role is to ensure that consumers are properly protected and that prices reflect the efficient cost of supply. If the cost estimates are too low however, an efficient Standard Retailers will not generate sufficient revenue from the regulated services to cover their efficient costs, which may damage their financial viability, and hinder the development of effective competition in the retail market. It will also harm consumers, because the on-going financial viability of efficient Standard Retailers are important to ensure the continuing availability of electricity supplies. And ultimately, effective competition between retailers will provide the most powerful protection for consumers from inefficient prices.

However, estimating an efficient Standard Retailer's costs is not a straightforward task, due to a number of uncertainties. For example, retailers purchase electricity on the National Electricity Market, and wholesale spot and contract prices in the NEM tend to be volatile and difficult to forecast. For instance, wholesale market prices can change in response to variations in total demand on the national energy system, gas prices and weather conditions. Retailers attempt to manage this price volatility through hedging instruments.

For the 2010 review, estimating Standard Retailers' costs will be even more challenging than usual, due to several significant developments in the market, policy and regulatory environment. As the Issues Paper discussed, some of these developments are likely to increase retail electricity prices over the coming years, including the Federal Government's climate change mitigation strategy and the Australian Energy Regulator's recent determination on network electricity prices. Others will lead to uncertainties within the electricity market for at least some of the review period, including the passage of the Federal Government's climate change mitigation strategy through parliament, and the NSW Government's planned energy reform strategy, which includes privatising the Standard Retailers and selling trading rights to the state-owned generators.

Given this higher level of risk and uncertainty, IPART will not only need to ensure that it makes its decisions based on estimates of efficient retailers' costs at the time of the determination. It will also need to build sufficient regulatory flexibility into this determination, so regulated tariffs can be adjusted during the determination period if these costs prove to be significantly different to the estimates.

1.3 How does IPART propose to estimate retailers' costs and address the risks and uncertainties?

As the Issues Paper discussed, IPART intends to regulate retail tariffs using a weighted average price cap (WAPC) approach, as it did for the 2007 Determination. IPART's WAPC formula allows for retailers' actual distribution network costs – the 'N' values in the formula – to be passed through to customers. However, the other values in the formula – the 'R' values – are based on IPART's estimates of the efficient costs of supplying small retail customers on regulated tariffs. These R values include three main components: an energy purchase cost allowance, a retail operating cost allowance, and a retail margin.

For the 2007 review, IPART developed methodologies for establishing retailers' energy purchase costs, retail operating costs and the retail margin and setting the allowances for each of these and other relevant cost components. It addressed the risks and uncertainties retailers face in purchasing energy either through the decisions it made in setting the cost allowances, or through other parts of the 'regulatory package' (such as a volatility allowance and annual reviews of the energy purchase cost allowance). It was careful to ensure that each risk was addressed once and only once within the regulatory package.

As the Issues Paper indicated, IPART proposes to draw upon these methodologies and approach for addressing risks as its starting point for the 2010 Determination, and adapt them where necessary to take account of the particular risks and uncertainties over the determination period. At this stage of the review, IPART envisages that the most significant difference in its approach will be in the scope of the periodic reviews of the energy purchase cost allowance and the inclusion of the costs of meeting the Carbon Pollution Reduction Scheme (CPRS) and expanded renewable energy target (RET).

The 2007 Determination provided for an annual review of the market-based energy purchase cost allowance in 2008 and 2009. The annual review was intended to explicitly address the risk of significant but unforeseeable changes in the wholesale price of electricity. To increase regulatory certainty and minimise perverse incentives the scope of any price revision was pre-determined and the methodology used was mechanistic. The Determination provided that where an annual review found that the market-based electricity purchase costs for that year had differed by 10 per cent or more from the allowance IPART used in making the determination, then the regulated tariff path would be revised.

For the 2010 Determination, it is likely that the scope of the periodic review will need to be broader to take account of the greater sources of uncertainty. IPART is not disposed to the same predetermined, mechanistic approach as the 2007 determination. For example, it may be necessary for IPART to reconsider its decisions on the regulated load profile, the volatility allowance, and the impact of any carbon trading scheme on energy purchase costs as part of the periodic review process. In its deliberations, IPART is also disposed to examine the circumstances that are driving any changes in the energy purchase costs. As part of the periodic review IPART will examine the long-run marginal cost of electricity generation, in accordance with the Terms of Reference.

If the scope of the periodic review is wider, it will mean that more of the risk associated with purchasing energy is being allocated to consumers than to retailers. The regulatory package that IPART is developing recognises that the risks and mechanisms to account for these risks are interdependent. For example, in choosing an appropriate retail margin from the feasible range, IPART will consider the impact of risk allocation between retailers and customers.

IPART recognises that widening the scope of the periodic review may reduce the stability of regulated retail prices over the 2010 determination period. However, IPART considers greater flexibility to be in the long-term interest of customers as more of the risks are managed through periodic changes to the retail price.

1.4 How and when can you provide input on this draft methodology paper?

IPART considers it important that stakeholders consider and comment on the draft approach for estimating the cost allowances and addressing the risks and uncertainties involved. It invites all interested parties to make submissions in response to this paper by 18 September 2009. It plans to hold a public forum on the draft methodology on 1 September 2009.

IPART also invites stakeholders to consider and comment on the expert advice it has received from Frontier Economics on the energy purchase cost allowance and SFG on the retail margin. Both consultants' reports are available on the IPART website. Comments can be made within submissions in response to the draft methodology paper, and at the public forum on 1 September 2009.

An updated timetable for the review is set out in Table 1.1.

Table 1.1 Timetable for IPART's 2010 review of regulated retail electricity tariffs and charges

Key tasks	Time
Release draft methodology paper and invite stakeholder submissions	19 August 2009
Hold public forum	1 September 2009
Receive stakeholder submissions on methodology paper	18 September 2009
Release IPART's draft report and Determination and expert reports and invite stakeholder submissions	Early Dec 2009
Hold public hearing on draft report	Mid December 2009
Receive stakeholder submissions on draft report	Late Jan 2010
Release IPART's final report and Determination	March 2010

1.5 What does the rest of this paper cover?

The rest of this draft methodology paper discusses IPART's proposed approach for the analysing the costs that an efficient Standard Retailer will incur in supplying small retail customers on regulated tariffs in more detail, and outlines IPART's preliminary thinking. It is structured as follows:

- ▼ Chapter 2 provides an overview of IPART's proposed approach for addressing the risks and uncertainties associated with forecasting retailers' costs for the 2010 determination period, and its preliminary thinking on what the key risks are and where within the regulatory package they are best addressed.
- ▼ Chapter 3 discusses the proposed approach for estimating the energy purchase cost allowance. It sets out IPART's latest thinking on the methodology and key assumptions involved, and its preliminary views on the best approaches for addressing the risks and uncertainties related to the energy purchase cost allowance.
- ▼ Chapter 4 focuses on the proposed approach for estimating the retail cost allowance, including retail operating costs and customer acquisition and retention costs.
- ▼ Chapter 5 discusses the proposed approach for estimating an appropriate retail margin, including its preliminary views on the methodology and key assumptions and best approaches for addressing risk and uncertainties.

2 Addressing risks and uncertainties within the regulatory package

As Chapter 1 discussed, there are a range of risks and uncertainties related to analysing the costs an efficient Standard Retailer will incur in supplying customers on regulated tariffs over the determination period. Some of these relate to normal variations in the 'inputs' to the cost estimates, such as retailers' regulated load profile and wholesale electricity prices. Others stem from developments in the market, policy and regulatory environment that are likely to lead to higher energy purchase costs, and may increase volatility and uncertainty of wholesale electricity prices.

The sections below provide an overview of IPART's proposed approach for addressing these risks and uncertainties and its preliminary thinking on the nature of the key risks and the most appropriate way to address them within the regulatory package.

2.1 Overview of proposed approach for addressing risks and uncertainties

In analysing the costs of an efficient Standard Retailer, IPART proposes to:

1. Explicitly identify and characterise each risk and uncertainty related to forecasting these costs, including those that stem from normal variations in cost inputs and from developments in the electricity market, policy and regulatory environment.
2. Identify the cause of each risk/uncertainty and characterise its likely impact on retailers and customers.
3. Determine the most appropriate allowance or other regulatory mechanism for addressing each risk, taking into account, the general principles of risk allocation, the impacts on regulatory certainty and the incentives created for retailers, and the implications for administrative costs.
4. Ensure that there is no double counting – that is, that retailers are compensated for each risk/uncertainty allocated to them once only, and are not compensated for risks allocated to consumers.

In identifying and characterising each risk, IPART considers it useful to distinguish between those that relate to normal variations and those that relate to step changes in one of the factors that influence retailers' costs:

- ▼ Normal variations refer to changes that can be expected and, based on past experience or current market information, typically occur within a predictable range. For example, these include the changes in wholesale energy market prices that stem from variations in the weather and levels of demand.
- ▼ Step changes refer to significant changes outside the range of normal variations. For example, these might include changes in retailers' costs due to unforeseen changes in the structure of the energy industry or the policy or regulatory environment.

IPART also considers it useful to distinguish between systematic and non-systematic risks. Systematic risks are those that result from retailers' exposure to overall economic conditions – such as the risk that demand will change when the economic conditions change. Non-systematic risks are business specific risks that result from events not related to overall market movements including weather and generation plant availability. Section 2.2 highlights that systematic risks are compensated for in the retail margin.

In applying Steps 3 and 4 of the above approach, IPART will need to take a holistic view. For example, if it determines that some of the risk of a step change in wholesale energy prices created by uncertainty about the CPRS is best allocated to consumers and addressed through a periodic review of the energy purchase cost allowance, it will need to ensure that this risk is not compensated for in the retail margin or in the energy purchase cost or volatility allowance. Conversely, if it determines that this risk is best allocated to retailers, who can manage it through their purchasing and hedging strategies, it will need to compensate retailers for bearing this higher risk.

IPART considers that this approach is consistent with its proposed assessment criteria for this review. The transparency of the approach should also assist it in engaging with stakeholders on this issue during the review.

2.2 Overview of preliminary thinking on applying this approach

Based on the analysis it has done, and the stakeholder comments and expert advice it has considered to date, IPART has begun to apply the approach outlined above. Its preliminary thinking on the key risks to be considered in regulated retail prices and how they should be addressed is summarised in Table 2.1, and discussed in more detail within the chapters that follow. IPART seeks comment on both its proposed approach and its preliminary thinking on characterising and addressing risks.

Table 2.1 Key risks to be considered in setting regulated retail prices

Risk	Description	Comments	IPART's preliminary view on addressing the risk
Normal variation in load profile of regulated customer base	The actual load profile is different to that assumed in setting the regulated retail tariff, but within normal ranges	<p>Could be either a cost or benefit for retailers</p> <p>Could be either a systematic risk due to changes in economic conditions, or a non-systematic risk due to changes in weather patterns or technology, or generation availability, etc</p>	<p>Address systematic risk through retail margin</p> <p>Address non-systematic risk through</p> <ul style="list-style-type: none"> ▼ Including a volatility allowance (which recognises the correlation between load and price), and ▼ choosing an appropriate point on the 'efficient frontier' in determining the market based estimate of energy purchase costs
Normal variation in wholesale electricity spot and contract price	The actual wholesale electricity spot and contract price outcomes are different to that assumed in setting the regulated retail tariff, but within normal ranges	<p>Could be either a cost or benefit for retailers</p> <p>Could be either a systematic risk due to changes in economic conditions, a non-systematic risk due to changes in total system demand, generator availability, weather, gas prices, etc</p>	<p>Address systematic risk through retail margin</p> <p>Address non-systematic risk through including a volatility allowance</p>
Step change in load profile of regulated customer base	The actual load profile is outside the normal variation range and significantly different to that assumed in setting prices	Unlikely to occur, given nature of customer base. However, possible if the Government changes the threshold for eligibility to be a regulated retail customers (eg. Lowering the threshold from 160 MWh per annum to a lower annual consumption)	Address through periodic review or cost pass through mechanism (subject to a materiality threshold)

Risk	Description	Comments	IPART's preliminary view on addressing the risk
Step change in wholesale electricity spot and/or contract price	The actual wholesale electricity spot and contract price outcomes are outside the normal variation range and significantly different to those assumed in setting prices	<p>If average wholesale prices were significantly lower than assumed, it would not adversely affect retailers. However, customers on the regulated tariff would be paying too much</p> <p>If average wholesale prices were significantly higher than assumed but this was signalled in advance, there should be sufficient time to adjust regulated tariffs to avoid adverse impacts on the retailers' financial positions</p> <p>Higher but well signalled prices could result from changes in the design of the proposed CPRS, particularly the timing and scope of the scheme</p>	Address through a periodic review
Step change in volatility of wholesale electricity spot and/or contract price	The volatility of prices increases significantly – but the average price does not change	A significant change in volatility without a change in the average price is likely to affect retailers' short-term working capital requirements	Address through potentially reviewing the volatility allowance in a periodic review
Step increase in customer defaults and bad debts	Significant change in regulated customers' bad debt and default rate	<p>This could occur if electricity prices increase significantly as a result of market, policy and regulatory developments</p> <p>However, it could be classified as normal business credit risk</p>	Address in retail operating cost allowance
Change in industry structure compared to that assumed	The industry structure differs from that assumed in the determination	Could affect retail operating costs and wholesale electricity costs, including by changing behaviour of market participants	Assume current ownership and structure for the first year of the determination and consider updating as part of a periodic review

Risk	Description	Comments	IPART's preliminary view on addressing the risk
General business risk	Economic risk (unexpected changes in interest rates, exchange rates); credit risk; operational risk (equipment failure, fraud); liquidity risk (inability to pay bills)	Mainly a systematic risk due to changes in economic conditions	Address systematic risk through determining the range for the retail margin. Any non-systematic risk is addressed in the operating cost allowance
Change in regulations, legislation or taxation	Government imposed changes in regulatory or legislative environment (including changes to the design of the CPRS or RET) or a taxation change event that were unanticipated at the time of making the determination	Could impose an additional cost or cost saving	Address through a cost pass-through mechanism, subject to a materiality threshold

3 Establishing the energy purchase cost allowance

The NSW Standard Retailers (like other retailers operating in NSW) buy wholesale electricity in the National Electricity Market (NEM). A certain proportion of this electricity must be from renewable sources to meet their obligations under State and Federal Government schemes to reduce greenhouse gas emissions and increase energy efficiency. They also incur other costs to meet these obligations.

IPART needs to establish an allowance that covers the costs an efficient Standard Retailer would incur in purchasing energy to supply its regulated customers and meeting its obligations under greenhouse and energy efficiency schemes over the determination period. Typically, these costs make up the largest portion of the 'R' component of a retailer's costs, and represent around 45 per cent of its total cost base (ie, 'R + N'). IPART expects that establishing the energy purchase cost allowance will be the most challenging aspect of this review.

The sections below provide an overview of IPART's proposed methodology for establishing this allowance, and discuss its preliminary thinking on the key issues and key assumptions involved in applying this methodology, and the most appropriate way to address the risks associated with forecasting energy purchase costs within the regulatory package.

3.1 Overview of proposed methodology for establishing the energy purchase cost allowance

IPART proposes to establish the energy purchase cost allowance and incorporate this allowance into the 'R' component of the WAPC formula using the following methodology:

1. Estimating the long run marginal cost (LRMC) of generation for supplying each retailer's regulated load for each year over the 2010 determination period, including the impact of the CPRS on this cost.
2. Estimating the market-based energy purchase cost of supplying each retailer's regulated load for each year over the 2010 determination period, including the impact of the CPRS on this cost.

3. Considering both the above estimates, then exercising its judgement to determine the appropriate cost allowance in accordance with the Terms of Reference. This decision will reflect IPART's holistic view of the most appropriate place within the regulatory package to address each risk and uncertainty (as discussed in Chapter 2) and its assessment criteria for this review.
4. Estimating the cost of complying with green energy schemes including the NSW Greenhouse Gas Reduction Scheme (GGAS), the Energy Savings Scheme (ESS) and the expanded national Renewable Energy Target (RET), recognising that the NSW Government has committed to end GGAS once the CPRS commences.²
5. Estimating the costs of NEM fees and energy losses.
6. Determining the total energy purchase cost allowance by adding together the costs in steps 3, 4 and 5.
7. Treating the energy purchase cost allowance as a variable cost reported in dollars per MWh for each Standard Retailer.
8. Disaggregating these dollar amounts into peak, shoulder and off-peak dollars per MWh for each retailer.
9. Incorporating these disaggregated dollar amounts into the R values for each retailer.
10. Providing for a periodic review of the energy purchase cost allowance and R values during the determination period.

This proposed methodology is broadly the same as the one used to establish the energy purchase cost allowance for the 2007 Determination, but has been modified where necessary to ensure it addresses the new challenges for this determination.

As for the 2007 review, IPART has engaged Frontier Economics to provide advice and recommendations on the energy purchase cost allowance, including an LRMC-based estimate and a market-based estimate of retailers' energy purchase costs. It has asked Frontier Economics to augment its modelling and advice to reflect recent developments in the market, policy and regulatory environment. This involves updating key assumptions and considering how to accommodate new issues (such as the proposed CPRS, expanded RET and the NSW Government's energy reform strategy).

Frontier Economics has provided a detailed report that proposes a methodology for estimating the energy purchase cost allowance, including the modelling assumptions that underlie this methodology.³ Frontier Economics' report is available on IPART's website, and IPART seeks stakeholder comments on this report.

² *Electricity Supply Amendment (GGAS Abatement Certificates) Bill 2009* – second reading speech, 17 June 2009.

³ Frontier Economics, *Modelling methodology and assumptions: A report for IPART*, August 2009.

3.2 Key issues involved in applying the proposed approach

IPART needs to resolve a range of issues related to the detail of the proposed methodology for establishing energy purchase cost allowance, including:

- ▼ how the methodologies for estimating the LRMC of generation and market-based energy purchase costs should be modified in light of national climate change mitigation initiatives
- ▼ whether the energy purchase cost allowance should be carbon inclusive or exclusive
- ▼ whether a standalone or incremental approach should be used to estimate the LRMC of generation
- ▼ how other green-related costs, including those of complying with GGAS, ESS and the expanded RET, should be estimated
- ▼ whether the methodology for establishing the energy purchase cost allowance should have more regard to publicly available data

IPART's latest thinking on these issues is set out below.

3.2.1 How should the LRMC of generation and market-based energy purchase costs be estimated in the context of national climate change mitigation initiatives?

New national climate change mitigation initiatives are likely to be introduced during the 2010 determination period, including the proposed CPRS and an expanded RET. The CPRS, in particular, will affect energy purchase costs by placing a price on carbon dioxide and other greenhouse gas emissions. This will add to the costs of electricity generation, and will have implications for both the LRMC of generation and market-based energy purchase costs.

IPART's current view is that the methodologies used to estimate the LRMC of generation and market-based energy purchase costs for the 2007 Determination can be modified to take account of these national initiatives. In relation to estimating the LRMC of generation, the additional carbon costs can be incorporated into the total generation cost optimisation model, which Frontier Economics uses to calculate the least-cost mix of existing and new plant options to meet the regulated load, including the cost of any plant required to meet any regulatory obligation.⁴

⁴ Frontier Economics' *WHIRLYGIG* model identifies the least cost mix of existing plant and new plant options to meet load.

How this modification affects the estimated LRMC will depend on a range of factors, including:

- ▼ the price of carbon (which in turn will depend on the level of the annual cap on emissions, the price of the penalty for not purchasing and surrendering sufficient permits, how the Australian market for permits is linked to international markets, and policy decisions made by Governments overseas), and
- ▼ the timeliness with which new lower emissions generation plant comes on stream.

How the CPRS will affect individual generation plant will vary, depending on the carbon intensity of the plant.

The assumptions that Frontier Economics proposes to use for each of these factors are discussed in section 3.3 below and in greater detail in Frontier Economics' report.⁵

In relation to estimating market-based energy purchase costs, the additional carbon costs can be incorporated into the NEM simulation model, which Frontier Economics uses to predict wholesale energy spot prices based on a simulation of the operation of the NEM.⁶ Frontier Economics would then use these price predictions in its portfolio optimisation model to estimate an efficient market-based energy purchase cost allowance.⁷

The key challenges in estimating market-based energy purchase costs will be predicting how the additional carbon costs will affect generators' bidding behaviour in the NEM and, in turn, how this will affect prices in the spot and contract markets. IPART considers it likely that generators will factor in the additional carbon costs to their bids, regardless of whether permits are auctioned or provided to industry as part of the Federal Government's industry assistance, due to the opportunity costs. However, in determining their bids, generators are likely to consider factors such as the likely behaviour of their competitors, and the relationship between their bid price and generation volumes. Therefore, the extent to which generators 'pass through' their costs will depend on a range of factors, including:

- ▼ the emissions intensity of the marginal plant (before and after the introduction of the CPRS)
- ▼ the existing mix of generation technologies in each NEM region, and
- ▼ the competitiveness or market dynamics of the NEM.

The assumptions Frontier Economics proposes to use for each of these factors are discussed in section 3.3 below and in greater detail in Frontier Economics' report.⁸

⁵ Frontier Economics, *Modelling methodology and assumptions: A report for IPART*, August 2009.

⁶ Frontier Economics' SPARK model uses game theoretic techniques to forecast spot price outcomes in the NEM.

⁷ Frontier Economics' STRIKE model identifies the least cost portfolio of electricity purchasing options in the NEM for each level of risk.

⁸ Frontier Economics, *Modelling methodology and assumptions: A report for IPART*, August 2009.

3.2.2 Should the energy purchase cost allowance be carbon inclusive or exclusive?

For its 2007 Determination, IPART established the energy purchase cost allowance based on the 'black price' of purchasing energy in the NEM (ie, the cost of purchasing energy in the NEM in the absence of any climate change mitigation measures). It then added separate allowances for the costs of complying with mitigation measures, including GGAS⁹ and the national Mandatory Renewable Energy Target (MRET).¹⁰

In its Issues Paper for the 2010 Determination, IPART proposed to set a carbon-inclusive energy purchase cost allowance that represents the 'bundled black and green CPRS price' of purchasing energy in the NEM. In other words, it does not propose to add an explicit allowance for the additional costs of purchasing energy in the presence of the CPRS; rather these additional costs will be included in the estimates of the LRMC of generation and market-based energy purchase costs.

Submissions to IPART's Issues Paper have expressed preference for the carbon inclusive as well as the carbon exclusive approaches. For example, Origin Energy supports a carbon inclusive approach to setting the energy purchase cost allowance¹¹, while EnergyAustralia and Country Energy support a carbon exclusive approach.¹²

IPART favours setting a carbon-inclusive energy purchase cost allowance because it expects that, in the medium to longer term, generators will treat the costs of carbon emissions just like their other costs, so they will be reflected in wholesale energy market prices. Once this happens, it will be very difficult to separate the 'black' and 'green' elements of electricity prices in the NEM.¹³

However, as it indicated in the Issues Paper, IPART acknowledges that generators may not treat the cost of carbon as 'just another cost' in the short term, so for the 2010 Determination it may be possible to determine a 'black' carbon-exclusive energy purchase cost allowance and add an explicit allowance for the impact of the CPRS. IPART recognises the transparency benefits of this approach. However to add an explicit allowance to the 'black' energy purchase cost would require assumptions to be made regarding the pass through rate of carbon costs and the marginal generator.

⁹ Formerly the Greenhouse Gas Abatement Scheme.

¹⁰ The MRET scheme is designed to promote the generation of electricity from renewable energy sources and requires retailers to annually surrender certificates that represent the generation of electricity from renewable energy sources. The GGAS promotes the reduction of greenhouse gases associated with the production and use of electricity to a target level set for each year. Retailers must surrender certificates representing the abatement of greenhouse gases each year, based on their share of the target set for that year.

¹¹ Origin Energy submission, August 2009, p 18.

¹² EnergyAustralia submission, August 2009, p 19.

Country Energy submission, August 2009, p 17.

¹³ For example, they may use an 'exchange traded contract' or other form of 'carbon inclusive' contract, whereby generators bear any carbon price risk. See http://www.dcyphatrade.com.au/newsroom/industry_news/first-calendar-2012-trade-250

Determining appropriate assumptions for these across every half hour in the NEM would be complex.¹⁴

To accurately determine the pass through rate and the marginal generator requires modelling the impact of the carbon price on the NEM (essentially a carbon inclusive approach). Therefore accurately determining the impact of the CPRS on the NEM and wholesale energy prices requires modelling a carbon inclusive energy purchase cost estimate.

Frontier Economics proposes to estimate both the LRMC of generation and market-based energy purchase costs based on carbon-inclusive wholesale energy prices. As discussed in section 3.2.1 Frontier proposes to do this by incorporating the carbon cost into the SRMC of thermal generation plant. However, IPART intends to further consider the merits of a carbon inclusive versus carbon exclusive approach to estimating the energy purchase cost allowance.

3.2.3 Should a standalone or incremental approach be used to estimate the LRMC of generation?

To estimate the LRMC of generation for supplying each retailer's regulated load, either a standalone or an incremental approach could be used:

- ▼ A **standalone** approach assumes that there is currently no generation plant available to serve the required load. This approach theoretically builds, and prices, a whole new generation system that is least-cost. In effect, it re-prices all existing capacity at efficient levels and includes the capital costs of new plant in the LRMC estimate.
- ▼ An **incremental** approach assumes that the existing mix of generation plant in the system is in place and that the required load can be served using both existing generation plant and new generation plant. This approach prices load on the basis of the least-cost way of adding to the existing stock of plant and does not factor in the capital costs of existing plant as this is assumed to be sunk.

Frontier Economics proposes to estimate the LRMC of generation using a standalone approach for the following reasons:

- ▼ This approach includes the capital cost of generation plant. Including these costs is likely to be consistent with the terms of reference, which require that the LRMC be "based on ... [generation plant] earning an economic return on their market value".¹⁵

¹⁴ For example, if a gas generator was to become the marginal generator setting the price, rather than a black coal generator, adding the carbon costs of the black coal plant to the carbon exclusive price would tend to overstate energy prices. Frontier Economics, *Modelling methodology and assumptions: A report for IPART*, August 2009, p 76.

¹⁵ Frontier Economics, *Modelling methodology and assumptions: A report for IPART*, August 2009, p 8.

- ▼ It is difficult to appropriately attribute the incremental costs of the system to each different regulated load of the retailers. This may involve arbitrary cost allocation assumptions, which could be contentious.¹⁶

A standalone approach to estimating the LRMC of generation is also consistent with the approach used for the 2007 Determination.

To estimate market-based energy purchase costs, input assumptions (including assumptions on new investment in generation plant) need to be made to develop generator bidding strategies as part of the NEM simulation model.¹⁷ Frontier Economics proposes to use an incremental approach for this purpose, given that the market model simulates the behaviour of actual NEM participants and therefore requires the least-cost modelling to reflect the existing mix of generation plant in the system.

3.2.4 How should the costs of complying with the NSW GGAS, ESS and the expanded RET be estimated?

Although IPART proposes to set a carbon-inclusive energy purchase cost allowance that includes the costs associated with the CPRS (see section 3.2.2 above), it also needs to estimate retailers' costs in complying with other green energy schemes. These include the NSW GGAS (which is to be discontinued once the national climate change mitigation measures are implemented), the ESS and the expanded RET (upon implementation).

As the Issues Paper indicated, IPART proposes to add explicit allowances for these other costs to the energy purchase cost allowance. It expects that estimating these other cost allowances will be less complex than estimating the carbon-inclusive cost allowance.

Frontier Economics' proposes to estimate the cost of complying with the RET by estimating the LRMC of renewable energy certificates (for 1 MWh of renewable generation). Both the RET and GGAS are imposed as 'constraints' on the model, and Frontier has noted that the total cost optimisation model it uses to estimate the LRMC of generation for supplying retailers' regulated load optimises over the thermal (non-renewable) and renewable markets concurrently. This means it accounts for any interaction between the wholesale pool price and the Renewable Energy Certificate (REC) price.¹⁸ This ensures that the costs associated with the RET are not double-counted.

¹⁶ Frontier Economics, *Energy Costs - Draft Report: A report prepared for IPART*, December 2006, p 13.

¹⁷ Frontier Economics' SPARK model uses game theoretic techniques to forecast spot price outcomes in the NEM.

¹⁸ Frontier Economics, *Modelling methodology and assumptions: A report for IPART*, August 2009, p 38.

The ESS, which commenced on 1 July 2009, establishes legislated annual energy savings targets for electricity retailers and certain other parties that must be met through the surrender of Energy Savings Certificates (ESCs). ESCs may be created from recognised energy savings activities that either reduce electricity consumption or improve the efficiency of energy use.

In the first year, the target has been set to 0.4 per cent of total electricity sales in NSW. The target will increase gradually to four per cent in 2014. Electricity retailers are required to meet individual energy savings targets based on the size of their share of the NSW electricity market.¹⁹

Retailers will be required to meet this target by surrendering (ESCs) that have been either:

- ▼ bought in the open market, or
- ▼ earned by undertaking energy efficiency activities, or
- ▼ received from specialist energy savings companies (ESCOs) that retailers have contracted to undertake certificate-generating energy efficiency activities for them.

Scheme Participants who do not surrender sufficient ESCs will be subject to a penalty for any shortfall. The penalty rate will be \$24.50 per MWh to provide an incentive for compliance. This is equivalent to an after-tax price for energy savings of \$35 per MWh and effectively caps the ESS cost at this level.²⁰

IPART will consider information provided by the retailers on the cost of complying with the ESS. Further analysis will be undertaken.

3.2.5 Should the methodology for estimating the energy purchase cost allowance have more regard to publicly available data?

A number of submissions have noted the need for a significant level of transparency in this review, particularly in relation to estimating the energy purchase cost allowance.²¹ Transparency is particularly important for this review, given the higher than usual level of risk and uncertainty. Therefore, IPART aims to make its decision-making process and the information underlying its decisions as transparent as possible. To enhance transparency, it is considering whether the methodology for determining the energy purchase cost allowance could have more regard to publicly available data.

¹⁹ <http://www.ess.nsw.gov.au/about/about.asp>

²⁰ http://www.ess.nsw.gov.au/compliance_audit/compliance_audit.asp

²¹ AGL submission, August 2009, p 27; Origin submission, August 2009, p 19; Country Energy submission, August 2009, p 6.

In particular, greater use of publicly available data could be made in two main areas. The first is in forming the key assumptions that will underlie the estimates of the LRMC of generation and the new patterns of investment, such as generation costs, demand or load shape, fuel prices and carbon prices. This issue is discussed in section 3.3 below.

The second area is in determining the forward prices to be used in estimating market-based energy purchase costs.²² As discussed above, the proposed methodology for estimating these costs involves predicting future wholesale market prices based on a simulation of the operation of the NEM. These market outcomes will be fed into Frontier Economics' portfolio optimisation model which estimates optimal combinations of contract cover and spot price exposure for given levels of risk for each Standard Retailer. However, as the Issues Paper indicated, IPART is considering whether it is preferable and indeed possible to rely more on publicly available forward price data (such as d-cypha data²³), rather than simulated market outcomes.

After considering Frontier Economics' preliminary advice and stakeholder comments, IPART is still inclined to rely primarily on simulated market outcomes for two reasons. The first is the reliability of publicly available data. When it considered this issue for 2007 Determination (and the subsequent annual reviews of the energy purchase cost allowance), IPART decided not to rely primarily on publicly available information such as the AFMA Curve and d-cypha data. IPART concluded that the AFMA Curve was an industry price survey which was open to manipulation.²⁴ IPART also noted that d-cypha trading volumes were too low for the market to be considered sufficiently liquid, particularly in the later years of the Determination.²⁵

Frontier Economics' has recently advised that while trading volumes for d-cypha contracts have increased since 2007, making it a more liquid market, these volumes have not increased uniformly. This is particularly the case after 2010/11, reflecting the uncertainties surrounding the CPRS and the roll-off of the Electricity Tariff Equalisation Fund (ETEF).²⁶ IPART notes that there is a lack of liquidity in the forward contracting market in the later years of this determination period, particularly 2012/13. A number of submissions acknowledge the illiquidity in the forward market post 2010/11.²⁷ Given this, IPART considers at this stage that publicly available market data such as d-cypha is not likely to be reliable enough to

²² Frontier Economics' STRIKE model identifies the least cost portfolio of electricity purchasing options in the NEM for each level of risk.

²³ D-cypha Trade provides electricity futures market data to market participants of the Sydney Futures Exchange Energy derivatives market.

²⁴ IPART, *Promoting retail competition and investment in the NSW electricity industry: Regulated electricity retail tariffs and charges for small customers 2007 to 2010*, Final Report, June 2009, p 86.

²⁵ Also, hedge price data based on actual trades represents a relatively small and unrepresentative quantity of total trade in the market as most hedging occurs in the Over-The-Counter (OTC) market, the results of which are not publicly available.

²⁶ Frontier Economics, *Annual energy cost review, Response to submissions from stakeholders*, May 2009, p 2.

²⁷ Delta Electricity submission, August 2009, p 1; Origin Energy submission, August 2009, p 18.

rely on in determining the forward prices used in estimating market-based energy purchase costs for each year of the Determination. However, IPART will further consider the use of publicly available market data as part of the periodic review.

The second reason is the volatility of publicly available data on forward prices. Typically, observable forward market data is variable, and can reflect changes in market sentiment rather than market arrangements or information. This means that the period over which forward prices are assessed could have an impact on regulated tariffs. For instance, estimating market-based energy purchase costs using d-cypha data at one particular point in time could lead to very different results than if the snapshot had been taken at another point in time. In contrast, estimating these costs using estimates of future wholesale market prices (such as those derived from Frontier Economics' NEM simulation model) are not likely to be volatile unless key assumptions are altered in light of new market information.

As the Issues Paper noted, this volatility can be overcome by constructing a portfolio of market data over time (as regulators in Queensland and the ACT have recently done).²⁸ A number of submissions have expressed support for this approach.²⁹ However, IPART considers such an approach may be inconsistent with the principle that retailers should mark their wholesale book to market. In other words, using a rolling average contract price would not value the contract at the current market price for the instrument (known as 'marking to market').³⁰ IPART is interested in the implications that has for setting prices based on the efficient cost of supplying small retail customers as is required in the Terms of Reference.

Given all the above, in estimating market-based energy purchase costs for each year of the Determination IPART is inclined to adopt Frontier Economics' proposed approach, which is to use its own spot price forecasts in its portfolio optimisation modelling, and consider the spot forecasts provided by the Standard Retailers and data from other publicly available sources as a comparison. This is consistent with the approach used for the 2007 Determination. However, IPART will consider the use of publicly available market data as part of the periodic review.

In addition, to enhance transparency, IPART proposes to release Frontier Economics' spot and contract price forecasts (the outcomes of the SPARK modelling). These price forecasts will be reported on an aggregate basis (that is, an average spot price for each year of the current determination) but will also be provided in a spreadsheet on a half-hourly basis for each year of the 2010 to 2013 determination.

²⁸ ICRC, *Retail Prices for Non-contestable Electricity Customers, 2009–2010: Final Decision*, June 2009, p 39 and QCA, *2009-10 Benchmark Retail Cost Index: Final Decision*, June 2009, p 14.

²⁹ Country Energy submission, August 2009, p 18; EnergyAustralia submission, August 2009, p 28; AGL submission, August 2009, p 27; TRUenergy submission, August 2009, p 6.

³⁰ Mark-to-market or fair value accounting reflects that the fact that a contract is not worth what was paid for it but rather its market price today.

3.3 Key assumptions involved in applying this approach

To apply the proposed approach for estimating the energy purchase cost allowance IPART will need to make a number of assumptions. In particular, estimating both the LRMC of generation and market-based energy purchase costs will involve making assumptions on:

- ▼ the forecast demand for electricity over the determination period
- ▼ the appropriate discount rate to be used in modelling the least-cost mix of new and existing plant to meet retailers' regulated load and the NEM load
- ▼ the available generation technologies and their variable costs (fixed costs are only relevant for the LRMC estimates)
- ▼ generators' fuel prices, and
- ▼ the carbon price, particularly in 2012/13.

Estimating market-based energy purchase costs will also involve making assumptions on the ownership structure of the NEM, generator bidding strategies including contracting levels and the types of financial instruments available to retailers to manage wholesale market price volatility.

Frontier Economics' report on its proposed methodology discusses in detail the assumptions that it proposes to use as part of estimating the LRMC of generation and market-based energy purchases. This report indicates that Frontier Economics plans to base these assumptions on publicly available data where possible. It also identifies the key assumptions that are most material to the cost ranges. IPART intends to release further information on the sensitivity of the recommended cost ranges to changes in the key assumptions used as part of its draft report.

The sections below provide more information on the assumptions on the forecast demand and the discount rate.

3.3.1 Forecast demand for electricity

To apply the proposed methodologies for estimating the LRMC of generation and market-based energy purchase costs, several assumptions need to be made on the demand for electricity over the determination period. In particular, assumptions need to be made on:

- ▼ The Standard Retailers' forecast demand from customers on regulated tariffs (the forecast regulated load). This assumption will be used in estimating the LRMC of generation (as an input into the least cost generation model³¹), and in determining the efficient mix of hedging instruments to meet a particular load profile (as an input into the portfolio optimisation model³²).
- ▼ The forecast system or NEM-wide demand (the forecast NEM load). This assumption will be used in estimating spot price outcomes in the NEM (as an input into the NEM simulation model³³).

Forecast regulated load

The terms of reference for this review require IPART to set an energy purchase cost allowance for each year of the determination period to efficiently meet each Standard Retailer's forecast regulated load. It is not possible to source actual regulated load of each retailer using publicly available data unless the Standard Retailers agree to make their regulated load public. Although the Electricity Tariff Equalisation Ministerial Corporation publishes the weekly regulated load for all three NSW Standard Retailers, this aggregated data does not indicate the individual load profiles of each retailer.³⁴

For the 2007 Determination, IPART required each Standard Retailer to provide information on its forecast regulated load in each year of the determination period. However, due to its commercial sensitivity, this information was provided on a confidential basis.

As section 3.2.5 discussed, for the 2010 Determination IPART would like to make greater use of publicly available data in forming key assumptions, to make its decisions and the information they are based on as transparent as possible. In particular, IPART is examining whether it could use the net system load profiles

³¹ Frontier Economics' *WHIRLYGIG* model identifies the least cost mix of existing plant and new plant options to meet load.

³² Frontier Economics' *STRIKE* model identifies the least cost portfolio of electricity purchasing options in the NEM for each level of risk.

³³ Frontier Economics' *SPARK* model uses game theoretic techniques to forecast spot price outcomes in the NEM.

³⁴ Each retail supply area in NSW has a different load profile. Integral Energy has the peakiest load profile, reflecting its more extreme weather events and Country Energy has the flattest load profile, reflecting its geographic diversity and the resulting variability in weather across its region. IPART, *Promoting retail competition and investment in the NSW electricity industry: Regulated electricity retail tariffs and charges for small customers 2007 to 2010*, Draft Report, April 2007, p 52.

(NSLPs) as proxy for, or in addition to the retailers' forecasts of their regulated load. IPART has not made a decision on what load is preferable.

The NSLPs are publicly available data used to settle the wholesale energy consumption for all customers with accumulation meters, whether they are on a negotiated or regulated tariff.³⁵ Using this data as a proxy for each retailer's regulated load forecast would result in different load shapes, to the extent that regulated customers with time-of-use meters have a different load shape to those regulated customers with accumulation meters.

Because the NSLPs reflect the consumption for each 30 minute trading interval (and demand is highly correlated to the weather), they would need to be rolled forward into a forecast in order to be used for the purposing of establishing the energy purchase cost allowance. While this could be done by applying forecasts consistent with the Statement of Opportunities (SOO) or analysing the change in the regulated load as forecast by the Standard Retailers, it is likely to be complicated.

However, using the NSLPs would have some potential benefits. For example, because this data is publicly available, stakeholders would be able to interrogate it to ensure its veracity. In addition, IPART would be able to release more information about the modelling the data is used in, increasing the transparency of IPART's analysis and use of expert advice.

Specifically, in Frontier Economics' proposed methodology for estimating market-based energy purchase costs, the forecast regulated load is used in the portfolio optimisation modelling (which takes the forecast pool prices derived from the earlier NEM simulation modelling) to derive the optimal portfolio of contracting positions. By relying on publicly available load information in this calculation, IPART would be able to disclose the resulting hedging positions. This would significantly increase the transparency of the process compared to the 2007 review, where each Standard Retailer got to see only its own optimal portfolio.

AGL expressed support for the use of the NSLP.³⁶ IPART seeks further stakeholder comment on the benefits and complications associated with using the NSLPs as a proxy for, or in addition to the confidential forecasts of regulated load provided by each Standard Retailer.

³⁵ A basic meter (accumulation or type 6 meter) records the total amount of energy consumed at a connection point without recording when electricity was consumed in the period since the last meter reading. However, in the NEM energy is settled on 30 minute trading intervals. The NSLP converts readings from accumulation energy meter reading into estimated energy consumption for each 30 minute interval period. The NSLP is used to settle the wholesale energy consumption for all customers with accumulation meters, whether they are on a negotiated or regulated tariff.

³⁶ AGL submission, August 2009, p 15.

Forecast NEM load

The forecast NEM load (which includes the regulated and unregulated load for all retailers across Australia) is in one of the inputs to the market simulation model for forecasting spot price outcomes in the NEM.³⁷ Frontier Economics proposes to base this forecast on the regional load forecasts released by each Transmission Network Service Provider (TNSP) in July 2009, as the basis for their native energy³⁸ and maximum demand forecasts.

IPART notes that in its annual planning report, TransGrid (the NSW TNSP) indicated that the information used to prepare the demand forecasts for the NSW region for the 2009/10 to 2018/19 period was that known at the end of March 2009.³⁹

These forecasts suggest that relative to the 2008 projections, demand will decrease by 4.5 per cent in 2009/10, and 4.8 per cent over the 10 years to 2018/19.⁴⁰ This decrease is due to:

- ▼ the global downturn, which is affecting Australia's and NSW economic growth prospects and lowering the average demand for electricity⁴¹
- ▼ additional allowances (compared to 2008) for the phasing out of incandescent light bulbs, accelerated uptake of solar hot water systems and rooftop photovoltaic cells
- ▼ some reduction in air-conditioning driven peak demand.⁴²

TransGrid noted that the demand forecasts take into account electricity price information including the introduction of the CPRS; however, it also noted the uncertainty surrounding the timing and scope of the scheme.⁴³

IPART considers using the TNSP demand forecasts to derive the forecast NEM load is appropriate. Developing independent forecasts would be a very complex task, due to the number of factors that can affect demand over the forecast period. In addition,

³⁷ Frontier Economics is proposing to use the incremental approach for this purpose given that the market model simulates the behaviour of NEM participants and as such requires the least cost modelling to reflect the existing mix of generation plant in the system.

³⁸ Native energy refers to energy produced by scheduled and non-scheduled generation units. Non-scheduled generation are below 30MW capacity and are not included in the NEM dispatch process.

³⁹ TransGrid, *Annual Planning Report 2009*, New South Wales, July 2009, p 19.

⁴⁰ TransGrid forecasts average demand growth in the NSW region of 1.5 per cent per annum over the period 2009/10 – 2018/19, with the summer and winter peak increasing by 2.2 per cent and 2.0 per cent respectively, with a 10 per cent 'Probability of Exceedance' (POE). The 10 per cent POE maximum demand refers to maximum demand level that will be met or exceeded with a probability of 10 per cent (one in ten years). TransGrid, *Annual Planning Report 2009*, New South Wales, July 2009, p 18.

⁴¹ As part of this process for 2009, KPMG/Econtech were engaged by NEMMCO to supply economic and demographic scenarios on a consistent basis for each NEM region.

⁴² TransGrid notes that this has a bigger impact on summer peak demand relative to winter peak demand. TransGrid, *Annual Planning Report 2009*, New South Wales, July 2009, p 22.

⁴³ TransGrid, *Annual Planning Report 2009*, New South Wales, July 2009, p 19.

the TNSPs and the Australian Energy Market Operator (AEMO) put considerable work into their forecasts, and revise them annually. In addition, in making the 2009 forecasts they took into account the likely introduction of CPRS and other energy efficiency measures, and energy price changes (as at March 2009).

3.3.2 The appropriate discount rate

To estimate the LRMC of electricity generation, Frontier Economics proposes to calculate the least-cost mix of existing and new plant options to meet the regulated load, including the cost of any plant required to meet any regulatory obligation. To do this, it will calculate the total system costs as a net present cost in a specified base year using an assumed discount rate.

IPART has instructed Frontier Economics to use a discount rate of 8.2 per cent for this modelling. IPART determined this discount rate by considering the real pre-tax Weighted Average Cost of Capital (WACC) based on an analysis of the relative risk of a generation businesses and on prevailing market conditions. IPART considers a discount rate of 8.2 per cent is appropriate, given that its initial analysis indicates that electricity retail and generation are riskier than the network businesses it regulates. This suggests it is appropriate to adopt a higher equity beta and lower level of gearing relative to the other businesses IPART regulates. (See Appendix A for more information on this analysis and decision.)

IPART intends to update the market parameters used in determining the WACC as close as possible to the date of its decision.

3.4 Key risks and uncertainties associated with forecasting energy purchase costs

In line with the proposed approach for addressing the risks and uncertainties associated with this determination, IPART has identified and characterised the risks associated with forecasting energy purchase costs. They include the risk associated with:

- ▼ the normal variation in the retailer's regulated load profile, wholesale electricity spot and contract prices, and the retailer's hedging and portfolio structure.
- ▼ a step change in the retailer's regulated load profile, wholesale electricity spot and contract prices, and the volatility of these prices
- ▼ change in the industry structure compared to that assumed, and
- ▼ change in regulations, legislation or taxation.

Each of these risks and IPART's preliminary thinking on how best to address each of them within the regulatory package are discussed below.

3.4.1 Addressing risk associated with normal variation in the retailer's regulated load profile

As for the 2007 Determination, there is a risk that a retailer's actual regulated load profile differs from the forecast regulated load profile used in setting the energy purchase cost allowance (see section 3.3.1 above), but is still within the 'normal' range. Retailers may not have hedge cover for this additional load, potentially exposing retailers to increased costs.

IPART considers this risk can be characterised as partly systematic and partly non-systematic (see section 2.2). That is, this risk partly stems from retailers' exposure to the general economic or market conditions (which can result in rises or falls in the demand for energy) and partly from other factors such as changes in weather patterns and generation availability (which can also lead to rises or falls in demand). Retailers typically manage this risk through a combination of contracting and spot price exposure.

For the 2007 Determination, IPART decided to address the non-systematic component of this risk in determining the estimate of market-based energy purchase costs. In particular, it addressed this risk by selecting the most conservative point on the 'efficient frontier' (reflecting the high level of hedging a risk-averse retailer would prefer).⁴⁴ The systematic component of the risk was addressed in the retail margin.

For the 2010 Determination, IPART's preliminary view is that the non-systematic portion of this risk should again be addressed by selecting an appropriate point on the efficient frontier. Stakeholder submissions maintain that IPART should recognise the conservative and prudent risk management strategies of retailers in choosing a point on the efficient frontier.⁴⁵ IPART also recognises the volatility allowance compensates for the correlation between price and load.

IPART's preliminary view is that the systematic component of this risk should be addressed in setting the retail margin, as discussed in Chapter 5.

Further, IPART recognises that the contract portfolios of the retailers are likely to differ from the modelled portfolios, recognising the risk management strategies of retailers. The modelling approach proposed by Frontier Economics results in an efficient frontier of contract positions, reflecting different risk preferences. IPART will choose an appropriate point on the efficient frontier. As in the 2007 determination, retailers can provide IPART with risk management policies for consideration.

⁴⁴ Frontier Economics estimated the efficient mix of electricity purchasing instruments (ie, spot market purchases and electricity contracts of various kinds) for a range of risks. It represented the results as an 'efficient frontier'. This frontier demonstrated an important trade-off between the expected cost of the electricity portfolio and the associated risk, and showed that retailers' expected electricity purchase costs will depend on how they make trade-offs between cost and risk within their portfolio.

⁴⁵ Origin Energy submission, August 2009, p 3.

3.4.2 Addressing the risk associated with the normal variation in wholesale electricity spot and contract prices

There is a risk that actual wholesale electricity spot and contract price outcomes over the determination period will be different to those predicted by the modelling and used in estimating market-based energy purchase costs, but are still within the 'normal' range for wholesale prices. Like the risk associated with normal variation in the regulated load profile, this risk could result in retailers' either over or under recovering the costs of purchasing electricity for regulated customers, depending on whether actual prices are higher or lower than predicted. It could also result from systematic or non-systematic factors.

In the 2007 Determination, IPART addressed the non-systematic component of this risk by including an explicit allowance for the cost of retailers holding sufficient working capital to withstand the resulting cash flow variations (the 'volatility allowance'). This volatility allowance was in addition to the market-based energy purchase costs. The systematic component of the risk was addressed in the retail margin.

For the 2010 Determination, IPART's preliminary view is that the non-systematic component of this risk should again be addressed through a volatility allowance. IPART recognises that once implemented, the CPRS will introduce a new and potentially uncertain cost into the supply chain for wholesale electricity. A number of submissions note that until a liquid market for carbon develops, carbon costs may be volatile and subject to both Australian and international market factors.⁴⁶ In addition, the Market Price Cap (formerly known as the Value of Lost Load) is to increase from \$10,000/MWh to \$12,500/MWh from 1 July 2010.⁴⁷ Therefore, there is the potential that these changes could change the volatility of wholesale energy prices, while the variation in average prices remains within the 'normal' range.

Frontier Economics report notes however that the CPRS may not necessarily increase the volatility of the wholesale energy market, as carbon prices at some levels have the effect of flattening the supply curve for electricity.⁴⁸

IPART intends to give further consideration to whether a volatility allowance continues to be an efficient and reasonable means of addressing the risk of normal variation in wholesale electricity prices and, if so, how the potential for any additional volatility should be taken into account.

IPART's preliminary view is that the systematic component of the risk associated with the normal variation in wholesale electricity spot and contract prices should be addressed in setting the retail margin, as discussed in Chapter 5. IPART notes SFG's

⁴⁶ AGL submission, August 2009, p 9; TRUenergy submission, August 2009, p 6.

⁴⁷ *National Electricity Amendment Rule 2009 No. 13.*

<http://www.aemc.gov.au/Electricity/Rule-changes/Completed/NEM-Reliability-Settings-VoLL-CPT-and-Future-Reliability-Review.html>

⁴⁸ Frontier Economics, *Modelling methodology and assumptions: A report for IPART*, August 2009, p 77.

comment that the systematic component of this risk is small, given the weak relationship between prices and aggregate economic conditions.⁴⁹

3.4.3 Addressing the risks associated with a step change in retailers' regulated load profiles, wholesale electricity prices, and the volatility of these prices

For the 2010 Determination, there is a risk of significant variations (outside normal ranges) in retailers' regulated load profiles, wholesale electricity spot and contract prices, and the volatility of these prices. This is due to additional uncertainties arising from the developments in the market, policy and regulatory environment since the 2007 Determination.

These added uncertainties complicate the task of setting, ex-ante, an appropriate energy purchase cost allowance for the next three-year period, and essentially increase the risk of forecasting error (that is, of IPART 'getting it wrong'). It is important that these risks are appropriately addressed in the regulatory package because, as Chapter 1 discussed, significant forecasting error would have flow-on impacts on Standard Retailers, and potentially on the competitive retail market and consumers, particularly if retailers' access to risk management products was limited.

IPART considers that a step change in retailers' regulated load profile, so that their actual load profiles are significantly different to those assumed in setting regulated tariffs, is unlikely. However, it is possible if the NSW Government altered the definition of a small retail customer (currently defined as those consuming less than 160MWh). Altering the definition of small retail customer is likely to lead to a step change in retailers' regulated load profile.

The risk of a step change in wholesale spot and contract prices, so that actual price outcomes are significantly different to those used in establishing the energy purchase cost allowance, arises from the complex nature of the NEM and the inter-action between a number of uncertain elements including demand, fuel prices, generator bidding behaviour and plant availability. It also arises from uncertainty about the CPRS and its impact. For example, wholesale electricity prices could vary significantly if key details of the proposed scheme are changed, or if Australian or international carbon prices are significantly affected by international demand, policy decisions or market changes such as exchange rate fluctuations.

A number of submissions have noted the uncertainty surrounding the CPRS legislation and its potential impact on wholesale prices.⁵⁰ IPART recognises if wholesale prices are significantly lower than those used in setting prices – for example, because the CPRS was not implemented during the determination period – it will not adversely affect retailers, but the regulated tariff would be above the

⁴⁹ SFG, *Estimation of the regulated profit margin for electricity retailers in NSW – Methodology and Assumptions*, August 2009, p 5.

⁵⁰ Country Energy submission, August 2009, p 17; AGL submission, August 2009, p 8; Origin Energy submission, August 2009, p 17.

efficient cost of supply. However, if prices are significantly higher than those used in setting prices, due to changes in the design, scope or timing of the CPRS, the Standard Retailers are likely to face significant financial pressure as a result of supplying energy at a fixed price in an environment of rising wholesale market prices.

The risk of a step change in the volatility of wholesale electricity prices may also arise from a change in market conditions. If the volatility of wholesale prices increased significantly, but the average price remained within the normal range, then the efficient hedging strategy may change with flow on impacts for the volatility allowance.

IPART's preliminary view is that these risks are best addressed by providing for a periodic review of the energy purchase cost allowance during the 2010 determination period. This is similar to the approach used in the 2007 Determination, which provided for an annual review of the market-based energy purchase cost estimate to address the risk of a step change in wholesale electricity prices. However, IPART considers the design of the periodic review would need to be modified to provide sufficient regulatory flexibility to address the greater risks and uncertainties over the coming determination period. The most significant differences that IPART will consider are likely to be in the scope, timing and frequency of the reviews. Stakeholder submissions provided significant comment on the appropriate scope, timing, frequency and materiality of the periodic review.

The sections below discuss in more detail IPART's preliminary thinking on the appropriate design of the periodic review, including the review's scope, frequency and timing, materiality threshold and symmetry.

The scope of the periodic review

Under the 2007 Determination, the scope of the annual review was limited in order to increase regulatory certainty and minimise any perverse incentives. In particular, this annual review considered only the estimate of market-based energy purchase costs. If it concluded that this estimate was materially different (plus or minus 10 per cent) from the estimate used in determining the energy cost purchase allowance, the value of the regulator control parameter (the 'R' component) was adjusted accordingly.

However, given the added uncertainties over the 2010 determination period the periodic review will need to be less limited and mechanistic. That is, IPART is disposed to adopt a periodic review of the energy purchase cost allowance that provides it with some discretion over the matters that can be considered in the review (which may potentially include any factor driving change in retailers' energy purchase costs), and over the decision making including how the retail prices should be adjusted in response to the review's findings.

To adequately address the risks associated with a step change in retailers' regulated load, wholesale energy prices and the volatility of these prices, IPART's preliminary view is that the periodic review could consider:

- ▼ The LRMC of generation for supplying each retailer's regulated load for each year over the 2010 determination period, including the impact of the CPRS on this LRMC.
- ▼ The market-based energy purchase cost of supplying each retailer's regulated load for each year over the 2010 determination period, including:
 - CPRS legislation and carbon prices.
 - The load profile.
 - The volatility allowance.
 - The ownership structure of the NEM.
 - Other green related costs including the RET, ESS and GGAS.

It is important to note that the periodic review essentially allocates some risks to customers. This suggests that retailers should not be compensated for these risks elsewhere in the regulatory package. Therefore, the wider the scope of the periodic review (or the greater the frequency of the review), the less risks should be accounted for elsewhere in the regulatory package. A number of submissions noted that some of this risk was better managed through a periodic review than in the retail margin.⁵¹

The frequency and timing of the periodic reviews

While some submissions noted that annual reviews are appropriate,⁵² a number of submissions noted that to address the risk of potentially significant and rapid changes in wholesale electricity prices stemming from the CPRS, the periodic reviews may need to be held more frequently than annually.⁵³ For example, the AEMC has made a draft recommendation that all jurisdictions develop an adjustment mechanism for energy and carbon costs which can be invoked as frequently as six-monthly if new information reveals significant differences between actual and assumed energy costs (including carbon costs), subject to a cost change threshold.⁵⁴

IPART notes that rapid changes in wholesale electricity prices stemming from volatile carbon costs are unlikely in the first two years of the 2010 Determination, given that the scheme's introduction has been delayed until 1 July 2011 and the Federal Government proposes to set a carbon price ceiling of \$10 per tonne of CO₂ emissions for the first year the scheme is operating (2011/12).⁵⁵ This suggests that in

⁵¹ Origin Energy submission, August 2009, p 19.

⁵² EnergyAustralia submission, August 2009, p 33; AGL submission, August 2009, p 26.

⁵³ Origin Energy submission, August 2009, p 22; TRUenergy submission, August 2009, p 7.

⁵⁴ AEMC, *Review of Energy Market Frameworks in light of Climate Change Policies: 2nd Interim Report*, June 2009, p 49.

⁵⁵ Federal Government, *Media Release – New Measures for the Carbon Pollution Reduction Scheme*, 4 May 2009.

the first two years, an annual review may be sufficient. A number of submissions have noted that the key risk is in the final year of the Determination and that the frequency and timing of the periodic review may be crucial in this year.⁵⁶

IPART will undertake further analysis on the appropriate timing and frequency of the periodic review, particularly in the final year of the Determination.

The AEMC has also made a draft recommendation that while the reviews could be regulator-initiated (as per IPART's current annual reviews), it favours a model under which a retailer could initiate a price adjustment without regulator approval. An ex-post review would then be conducted at the end of the determination period to assess whether the price adjustment was warranted, with the potential for customer rebates if the regulator was not satisfied that price increases were necessary.

IPART does not agree with the AEMC's preferred option in its second interim report. IPART notes a number of potential complications with a periodic review that allows retailers to initiate a price adjustment but with an ex-post regulatory review and the potential for customer rebates, including:

- ▼ administrative costs (including billing etc) of providing rebates
- ▼ customer understanding of the rebates that result from them being previously 'overcharged'
- ▼ inter-temporal issues associated with customers being rebated at the end of the regulatory period
- ▼ potential impacts on the competitive market including new entrants of not being able to compete with a lower effective price that stems from a rebate.

Therefore, IPART's preliminary view is that the periodic reviews should be regulator-initiated with the timing of these set out in the determination (as per IPART's current annual reviews).

Materiality threshold for the periodic reviews

As noted above, for the 2007 Determination IPART incorporated a materiality threshold of 10 per cent. The materiality threshold applied to the difference between the modelled forecast energy purchase cost allowance included in the Determination and the forecast energy purchase cost modelled as part of the periodic review.

IPART notes that a materiality threshold is consistent with the AEMC's draft recommendations.⁵⁷ Submissions expressed a range of views on the materiality threshold for the periodic review. While some stakeholders supported maintaining a threshold of 10 per cent,⁵⁸ others questioned the need for it, or at least argued that it

⁵⁶ Origin Energy submission, August 2009, p 2.

⁵⁷ AEMC, *Review of Energy Market Frameworks in light of Climate Change Policies: 2nd Interim Report*, June 2009, p 55.

⁵⁸ EnergyAustralia submission, August 2009, p 33.

should be lowered given the potential impacts on retail margins.⁵⁹ IPART will undertake further analysis on an appropriate materiality threshold and its relationship with other elements of the regulatory package.

Symmetry of the review

IPART's Issues Paper noted that the terms of reference emphasise that its Determination should protect small retail customers by resulting in prices that are based on the efficient cost of supply in each year of the Determination. This suggests that the periodic review should be symmetrical with both material increases and decreases in the energy purchase cost allowance would be reflected in regulated retail tariffs. This would be in line with the cost pass-through mechanism in IPART's 2007 Determination as well as the AEMC's draft recommendation.⁶⁰

Stakeholder submissions expressed a range of views. While some argued that the review should be symmetrical,⁶¹ others argued that the competitive market would ensure that any 'over-estimation' will be competed away.⁶²

3.4.4 Addressing risks associated with a change in industry structure

As the Issues Paper discussed, the NSW Government plans to reform and restructure the NSW energy sector. While the final details and timing of the reform strategy are not yet known, the Government has indicated that it intends to privatise the Standard Retailers and sell the trading rights to the state-owned generators. If these changes in ownership take place during the 2010 determination period, it could affect wholesale electricity pricings – for example, by leading to changes in the bidding behaviour of strategic generators.

IPART's preliminary view is that this risk is best addressed by assuming that the current ownership and industry structure will remain in place in the first year of the determination period. If changes do occur, these could be considered as part of the periodic review discussed above.

⁵⁹ Origin Energy submission, August 2009, p 22; TRUenergy submission, August 2009, p 7; Country Energy submission, August 2009, p 20.

⁶⁰ AEMC, *Review of Energy Market Frameworks in light of Climate Change Policies: 2nd Interim Report*, June 2009, p 55.

⁶¹ Country Energy submission, August 2009 p 20.

⁶² TRUenergy submission, August 2009, p 7.

3.4.5 Addressing risk associated with unforeseen changes in regulations, legislation or taxation

There is always a risk that unforeseen changes in regulations, legislation or taxation (cost pass through 'events') lead to additional costs or cost savings to retailers, including to energy purchase costs. IPART's preliminary view is that this risk is best addressed through a cost pass-through mechanism, as it was in the 2007 Determination. This issue will be discussed in detail in IPART's draft report.

4 Establishing the retail cost allowance

Retailers incur a range of costs in performing their retail business functions, which include billing, marketing, providing customer advisory services, promoting and advertising their services, and handling customer inquiries. IPART needs to establish an allowance to cover the retail costs involved in serving regulated customers. The terms of reference indicate that in establishing this allowance, IPART will need to:

- ▼ take account of NSW Standard Retailers' efficient costs and other available information on retailers' efficient operating costs (rather than the efficient costs of a mass market new entrant, as for the 2007 Determination)
- ▼ include customer acquisition costs to ensure regulated retail tariffs are set at a level which encourages competition in the retail electricity market.

The sections below provide an overview of IPART's proposed methodology for establishing this retail cost allowance, and discuss its preliminary thinking on key issues involved in applying this approach, and the most appropriate way to address any risks associated with forecasting these costs for the 2010 determination period.

4.1 Overview of proposed approach for establishing the retail cost allowance

IPART proposes to define a NSW Standard Retailer as:

- ▼ an incumbent that has achieved economies of scale in retailing (ie, has efficient costs)
- ▼ a standalone retailer in NSW that is not vertically integrated into electricity distribution in NSW
- ▼ serves retail customers, including small retail customers, in NSW and potentially other jurisdictions across the NEM
- ▼ can offer retail customers standard form and/or negotiated customer supply contracts
- ▼ has an existing customer base to defend.

IPART proposes to estimate two broad categories of retail costs:⁶³

- ▼ **Retail operating costs (ROC):** These are the operating costs an efficient Standard Retailer would incur in performing the retail functions required to serve its small customer base. They include, among other things, the costs of billing and revenue collection, call centres and an appropriate allocation of corporate costs. IPART proposes to estimate ROC on a per customer per annum basis, reflecting the nature of these costs.
- ▼ **Customer acquisition and retention costs (CARC):** These are primarily marketing costs involved with both acquiring new customers and retaining existing customers. They also can include the costs of transferring customers. IPART proposes to estimate CARC on a per customer per annum basis.

As the Issues Paper indicated, IPART believes that the nature of retail business activities for regulated customers is relatively well understood. The associated costs are generally considered to be sufficiently generic and stable for retail operating costs to be assessed through a combination of benchmarking and sourcing data from other jurisdictions and industries. Therefore, IPART proposes to use the methodology it used for the 2007 Determination to estimate ROC and CARC. This will ensure that the aims and approach of the 2007 Determination are preserved as required by the current terms of reference.

The proposed methodology involves estimating ROC and CARC using both a bottom-up cost approach and a benchmarking approach:

- ▼ The **bottom-up cost approach** builds up an estimate for ROC and for CARC from the separate component of these costs. The data for the bottom-up approach include historical and forecast data on costs and customer numbers provided by the Standard Retailers. As part of the approach, IPART will subject these data to reasonableness tests. Information disclosed by publicly listed businesses will also be used to inform retail cost estimates.
- ▼ The **benchmarking approach** estimates ROC and CARC based on allowances for electricity retail costs from regulatory decisions in other jurisdictions and other relevant information.

IPART will compare the results of the bottom-up cost approach and benchmarking, then exercise its judgement to determine an appropriate and efficient estimate of ROC and CARC. It will add these estimates together to give the retail cost allowance.

⁶³ This classification of retail costs is adapted from the 2007 Determination, where Frontier Economics was engaged by IPART to estimate an appropriate allowance for retail costs including customer acquisition costs - see Frontier Economics, *Mass market new entrant retail costs and retail margin, Final Report*, March 2007, p 14.

Stakeholders who responded to the Issues Paper generally supported using a combination of historical and benchmarked costs to establish the retail cost allowance.⁶⁴ One noted that the benchmarking approach is widely accepted in regulatory pricing determinations and can allow for a level of cost that permits a range of retailers to compete.⁶⁵ However, stakeholders also pointed out that in determining the various retail costs, IPART should ensure that historical costs are appropriate in light of changes in the external environment and that benchmarking exercises are conducted ‘on a level playing field’.

In applying the proposed approach, IPART intends to undertake its own analysis, given the considerable analysis undertaken as part of the 2007 Determination. As indicated above, it will use information provided by all retailers. It will also consider all stakeholder comments. IPART considers the two more important methodological issues involved in estimating retail costs are:

- ▼ defining the types and determining the degree of allowances made for ROC and especially CARC
- ▼ the potential for double counting in the allocation of costs between ROC and CARC.

4.2 Estimating retail operating costs

To apply its proposed approach to estimating the ROC, IPART needs to decide what categories of cost will be included in these costs, how it will derive the bottom-up estimate of these costs, and how it will benchmark these costs.

4.2.1 What cost categories will be included in retail operating costs?

For the 2007 Determination, ROC included the following categories:

- ▼ call centre costs
- ▼ customer information costs
- ▼ corporate overhead costs
- ▼ regulatory compliance costs
- ▼ billing and revenue collection costs, and
- ▼ marketing costs.⁶⁶

⁶⁴ Energy Australia submission, August 2009, p 34 and covering letter; Country Energy submission, August 2009, p 20; Integral Energy submission, August 2009, p 8.

⁶⁵ AGL submission, August 2009, p 29.

⁶⁶ The information request also grouped into ROC a retailer’s bad and doubtful debt for both regulated and contestable small retail customers.

For the 2010 Determination, IPART proposes to include all of these cost categories in ROC, except for marketing costs which it will now include in CARC. IPART considers these cost items are appropriate, even though it is required to consider the retail costs of a Standard Retailer rather than a mass market new entrant, because for the 2007 Determination a mass market new entrant was defined as having a similar scale to a Standard Retailer and therefore was assumed to face similar types of ROC.

However, IPART considers that including marketing costs within a Standard Retailer's ROC will lead to double counting of these costs. This is because a Standard Retailer's marketing costs are likely to include costs related to retaining existing customers, which clearly overlap with CARC. Some marketing expenditure may also be multi-purpose in nature and target the acquisition of new customers as well as the defence of existing customers (eg, generic advertising).

Therefore, IPART proposes to exclude all marketing costs from ROC, and include them in CARC to minimise double counting and improve the transparency of these cost allowances. In doing so, IPART will seek further understanding of the composition of marketing costs, in particular the objectives of this spending.

IPART also proposes to consider the potential for double counting in the remaining ROC cost categories. For the 2007 Determination, IPART found that some labour costs associated with retailer transfer activities had been accounted for in ROC (through call centre costs associated with telesales) as well as in customer acquisition costs.⁶⁷ After removing this double counting, the total retail cost allowance was reduced by \$5 per customer per year (compared to the allowance used for the draft determination).

4.2.2 How does IPART propose to derive the bottom-up estimate of retail operating costs?

To provide the starting point for its bottom-up estimate of ROC, IPART has asked the Standard Retailers to report on the fixed and variable components of each of the ROC categories outlined above, and their actual and forecast number of small retail customers in each year from 2002/03 to 2013/14.

To develop this estimate, IPART proposes to use a similar approach to the one used for the 2007 Determination. In particular, IPART proposes to take the following steps:

1. For each retailer, averaging the fixed and variable components of ROC over a specified period using the retailers' reported costs and customer numbers.
2. Adding these average fixed and variable components together to provide a range of average ROC estimates.

⁶⁷ IPART, *Promoting retail competition and investment in the NSW electricity industry: Regulated electricity retail tariffs and charges for small customers 2007 to 2010*, June 2007, p 107.

3. Deriving an allowance for ROC from this range that represents an efficient level of ROC for a Standard Retailer (ie, through reasonableness tests and benchmarking).
4. Disaggregating the efficient ROC estimate into fixed and variable costs.
5. Expressing the variable costs in dollars per MWh and the fixed costs in dollars per customer.

In taking these steps, IPART will need to consider and resolve some important issues, including:

- ▼ the extent to which the ROC data provided by the retailers reflect efficient costs
- ▼ how the retailers' ROC are likely to change over the determination period
- ▼ the proportion of ROC that should be recovered through fixed and variable costs.

As in the 2007 Determination, many of these issues will be resolved by subjecting the cost data provided by the retailers to a series of reasonableness tests. IPART proposes that these tests will include:

- ▼ comparing the structure and level of costs across both the three NSW Standard Retailers and second-tier retailers to ensure consistency
- ▼ comparing the level of cost estimates for each Standard Retailer over time to ensure changes, and especially forecast changes in operating costs, are reasonable.

In relation to the efficient level of ROC, at this stage, IPART has no reason to believe that this level will vary across the Standard Retailers. For the 2007 Determination, IPART based its decision on the efficient level of ROC on the average ROC estimate for all three retailers. This decision reflected the fact that the reasonableness test had found that there was a high level of consistency in three retailers' individual ROC estimates, particularly in the structure of their reported costs.⁶⁸

In relation to how ROC are likely to change over the determination period, IPART will need to decide what weight to give to increasing fixed and variable cost components over the regulatory period, especially in light of potential productivity improvements. IPART will also need to decide what weight to give the retailers' forecasts of ROC and customer numbers. In other words, it needs to decide whether these forecasts are reasonable and reliable, or whether the retailers' historical data in estimating ROC are more appropriate. For the 2007 Determination, IPART decided to base the ROC estimates on the retailers' most recent *actual* reported costs and customer numbers and not their forecasts of costs over the regulatory period.⁶⁹ It also decided not to increase the ROC estimates in real terms over the determination period.

⁶⁸ Frontier Economics, *Mass market new entrant retail costs and retail margin, Final Report*, March 2007, p 24.

⁶⁹ There were particular concerns about the rate of increase in forecasted costs, both variable and fixed, over the regulatory period 2006/07 to 2009/10.

Some stakeholders who responded to the Issues Paper suggested that for the 2010 Determination, it may not be valid to base ROC estimates on retailers' actual or historical retail operating costs. This is because these costs reflect the current business model, in which Standard Retailers are stapled retailers, able to take advantage of synergies between the retail and distribution arms of the business.⁷⁰ Given the NSW Government's plans to reform and restructure the NSW energy industry, including privatising the Standard Retailers, one stakeholder argued that the ROC estimates should reflect the efficient costs of a standalone Standard Retailer (ie, unstapled), and that these costs are likely to be higher than those of a stapled retailer.

IPART recognises this and has defined a Standard Retailer as standalone in NSW to account for the proposed NSW Government reforms in the energy sector. However, it also notes that there is not necessarily any material difference in the efficient level of ROC for stapled Standard Retailers and standalone Standard Retailers.⁷¹ Further, it notes that for the 2007 Determination, the ROC estimates were based on those of a mass market new entrant, which was defined as having similar scale to a (stapled) Standard Retailer, but judged to be standalone in the sense that it did not have access to economies of scope from a shared distribution/retail business.⁷² Therefore, IPART considers historical ROC data are an appropriate starting point for the analyses in this determination.

Some stakeholders also put the view that for the 2010 Determination, historical ROC will need to be adjusted to reflect changes that have occurred or may occur over the determination period. These include:

- ▼ the implementation of new environmental schemes, such as the NSW Government's ESS, and the Federal Government's CPRS and expanded RET
- ▼ the increase costs associated with the management of bad debt resulting from increased electricity prices.⁷³

As indicated in the Issues Paper, IPART proposes to consider any new retail business activities and changes to existing activities that have occurred since 2007 as part of its analysis of ROC. This will involve IPART understanding the drivers for the changes, assessing whether they are material, and assessing whether they are additional to, or instead of other activities.

⁷⁰ Energy Australia submission, August 2009, p 34; Origin Energy submission, August 2009, p 23; AGL submission, August 2009, p 29; Country Energy submission, August 2009, p. 20.

⁷¹ See arguments in Frontier Economics, *Mass market new entrant retail costs and retail margin*, Final Report, March 2007, p 37-8.

⁷² On balance, IPART considered that the retail operating costs of a stand alone or unstapled mass market new entrant retailer were likely to be towards the top of the range recommended by Frontier Economics of \$60 to \$80 per customer per year. See IPART, *Promoting retail competition and investment in the NSW electricity industry: Regulated electricity retail tariffs and charges for small customers 2007 to 2010*, June 2007, p 96.

⁷³ Country Energy submission, August 2009, p 20-2; Integral Energy submission, August 2009, p 8; Origin Energy submission, August 2009, p 23.

As Chapter 2 discussed, IPART also proposes to consider any risks and uncertainties associated with forecasting ROC. However, most of the risks associated with forecasting Standard Retailers' costs over the 2010 Determination period related to the energy purchase cost allowance. IPART has identified only the management of bad debt as a risk associated with the retail cost allowance. IPART's preliminary view is that this risk is not a particularly significant one, and that it can be adequately addressed in establishing the retail cost allowance.

4.2.3 How does IPART propose to benchmark retail operating costs?

Where appropriate, IPART proposes to compare the results of the bottom-up ROC estimates against a series of benchmarks, including:

- ▼ allowances for retail costs in other jurisdictions
- ▼ publicly available industry information on retail costs
- ▼ information disclosures by non-standard or second tier retailers.

As for the 2007 Determination, this benchmarking will be used to confirm the reasonableness of the range of retailers' ROC estimates, and to inform IPART's judgement on an appropriate and efficient level of ROC in each year of the determination period. IPART notes stakeholders' concern that benchmarking be conducted on a 'level playing field', and that it be clear with what is covered so that these types of cost comparisons are performed on a like basis.⁷⁴ For example, IPART will need to examine the allocation of marketing costs in its comparative analysis.

4.3 Estimating customer acquisition and retention costs

As discussed above, for the 2007 Determination, IPART was required to set the retail cost allowance based on the costs of a mass market new entrant. IPART decided to estimate the customer acquisition cost component of this allowance using data provided by the Standard Retailers on the costs they incur in marketing to acquire new customers (for example, the payment of commission on sales) and transferring these customers. IPART considered this was a reasonable proxy for the costs of a mass market new entrant, because in its view the Standard Retailers enjoyed similar economies of scale to the type of business expected to enter the mass market in NSW.

Given that the terms of reference for the 2010 Determination require the retail cost allowance to reflect the efficient costs of a Standard Retailer rather than a mass market new entrant, this approach will need to be modified. In particular, the definition of customer acquisition costs will need to change to include customer retention costs and to reflect the greater diversity of Standard Retailers' customer base.

⁷⁴ Energy Australia submission, August 2009, p 35.

The sections below outline IPART's preliminary thinking on how to define customer acquisition and retention costs (CARC), estimate total CARC per customer, and translate this into an allowance per annum.

4.3.1 How should customer acquisition and retention costs be defined?

Since January 2002, every electricity customer in NSW has had the option to negotiate a retail supply contract with any licensed retailer. Small retail customers who do not seek supply from the competitive market are deemed to receive electricity under a 'standard form' customer supply contract from their 'standard retail supplier'. Customers can also switch backwards and forwards between these alternatives. These arrangements were designed to encourage customers to test the market by providing an assurance that they can return to regulated retail tariffs.

Given that a Standard Retailer is the prevailing incumbent in the market, it provides retail services to a cross-section of customers and has a customer base that can vary according to:

- ▼ **contract type:** customers can be on either a standard form customer supply contract (*standard* contract facing the regulated tariff) or a negotiated customer supply contract (*negotiated* contract facing market tariff)
- ▼ **customer origin:** a customer can be a Standard Retailer's *existing* customer or a *new* customer that is sourced from another retailer.

Therefore, unlike a mass market new entrant that acquires only new customers on only negotiated contracts, a Standard Retailer can acquire new customers on either a standard or negotiated contract, and can transfer customers between standard and negotiated contracts. It also has an existing customer base to defend.

This greater diversity in a Standard Retailer's customer base means IPART will need to consider both customer acquisition costs and customer retention costs, and define these costs. In defining customer acquisition costs, IPART needs to consider whether the costs related to all the potential variations in a Standard Retailer's customer base should be included. On the one hand, it is quite clear that all new customers obtained from other retailers, either on a regulated tariff or negotiated contract, constitute acquisitions. However, it is less clear how to interpret and treat transfers in contract types that occur among a Standard Retailer's existing customers and, particularly, whether the costs associated with these transfers should be classed as customer acquisition or retention costs.

To resolve this issue, IPART proposes to 'draw the line' between existing and new customers, and define acquisition costs as all marketing and transfer costs relating to new customers, and define retention costs as all marketing and transfer costs relating to existing customers.

To some extent, the distinction between customer acquisition and retention costs is simply an exercise in labelling, as both these costs need to be considered and reflected in setting the regulated tariff.⁷⁵ However, IPART considers that a clear definition is important to ensure the transparency of its calculations and help it ensure there is no double counting of costs.

4.3.2 How should total CARC be estimated?

The greater diversity of a Standard Retailer's customer base adds to the complexity of estimating its total customer acquisition and retention costs, because a Standard Retailer can potentially compete to acquire new or retain existing customers on either negotiated or standard contracts. Therefore, it may incur a range of different total acquisition and retention costs, depending on the type of customer it is competing for. For example:

- ▼ Acquiring a new customer from another retailer onto a negotiated contract may involve higher direct marketing costs than acquiring them onto the regulated tariff, given that Standard Retailers may not actively solicit customers returning to regulated tariffs. However, the costs associated with transferring customers once they have been acquired are unlikely to differ between those moving onto negotiated contracts or regulated tariffs.
- ▼ Transferring existing customers that move back and forth between the regulated tariff and negotiated tariff (without changing retailer) is likely to involve minimal costs. However, IPART will further examine the extent of costs a Standard Retailer incurs when marketing to existing customers, both on negotiated and regulated tariffs.

To account for these varying costs, IPART proposes to split CARC into two categories:

- ▼ **Direct acquisition and retention costs (DARC):** these are the costs of soliciting or 'winning over' customers (for example, door-to-door selling) as well as retaining customers (for example, other direct marketing activities). They also include multi-purpose marketing expenditures that target both the acquisition of new customers as well as the defence of existing customers (for example, generic advertising).
- ▼ **Transfer process costs (TPC):** these are the costs involved with transferring customers once they have been acquired or decide to switch contracts (for example, registration and credit checking, as well as AEMO's customer transfer procedures⁷⁶).

⁷⁵ In addition to customer acquisition costs, the terms of reference specifies that the efficient cost of supplying small retail customers should include customers who revert from negotiated tariffs.

⁷⁶ AEMO's Market Settlement and Transfer Solution (MSATS).

IPART's preliminary thinking on the different CARC allowances (in terms of DARC and TPC) for each type of customer a Standard Retailer faces are presented in Table 4.1.

Table 4.1 Categories of costs involved in a Standard Retailer acquiring and retaining customers

Customer type	Category of CARC incurred	Comments
<i>New Customers (acquired from other retailers)</i>		
Customers switching from another retailer to a negotiated contract with the Standard Retailer	DARC = prominent TPC = prominent	<ul style="list-style-type: none"> ▼ This is the same basis for calculating customer acquisition costs as the 2007 Determination. It is likely to be the largest CARC a Standard Retailer would incur because it actively seeks to acquire these customers from other retailers (and incurs a DARC). ▼ TPC are likely to be larger than TPC for existing customers because of AEMO's customer transfer procedures and collection of customer information.
Customers reverting from another retailer to a standard contract (ie, regulated tariff) with the Standard Retailer	DARC = limited TPC = prominent	<ul style="list-style-type: none"> ▼ DARC is likely to be limited because Standard Retailers may not actively solicit these customers. - rather, customers are likely choose to return to the regulated tariff. ▼ TPC likely to be the same for all new customers – see above.
<i>Existing Customers (already part of Standard Retailers' customer base)</i>		
Customers switching from the regulated tariff with the Standard Retailer to a negotiated contract with the Standard Retailer	DARC = limited TPC = negligible	<ul style="list-style-type: none"> ▼ Although there may be some direct marketing, DARC is likely to be significantly less than that involved with new customers because as existing customers they are known to the Standard Retailer). However, considerations over generic advertising remain. ▼ TPC is likely to be negligible because the customer is an existing customer to the Standard Retailer. Therefore, the Standard Retailer does not incur MSATS customer transfer procedures, nor should it have to collect customer information and undergo other internal procedures such as customer credit checks.
Customers reverting to or remaining on a standard contract (ie, regulated tariff) with the Standard Retailer	DARC = negligible TPC = negligible	<ul style="list-style-type: none"> ▼ DARC is likely to be negligible because Standard Retailers may not actively solicit these customers. However, considerations over generic advertising remain. ▼ TPC is likely to be negligible because the customer is an existing customer to the Standard Retailer – see above.

4.3.3 How should total CARC be translated into an allowance?

IPART proposes to translate CARC into an allowance per customer per year using a similar approach to the one it used for the 2007 Determination. That is, for each customer segment outlined above, it proposes to amortise the cost of acquiring and retaining a customer, over the expected number of years a customer remains with a Standard Retailer.⁷⁷ This effectively converts CARC to a cost per annum.

To amortise the costs of acquiring and retaining customers, three variables must be specified:

- ▼ the total cost of acquiring or retaining a customer
- ▼ the number of years over which these costs should be amortised, and
- ▼ the discount rate.

In the first instance, IPART proposes to use the bottom-up approach to estimate a total CARC per customer using, to the extent possible, the data provided by each of the Standard Retailers and any appropriate benchmarks.

Second, IPART will also use the bottom-up approach to derive the number of years over which these total CARC per customer costs should be amortised. Stakeholder submissions noted that in its estimation of the number of years that customers are expected to be retained, IPART should consider the increase in customers returning to standard contracts and not just focus on recent experiences of reduced levels of customer switching to market contracts.⁷⁸ IPART notes that by segmenting customer types, its conceptual framework for CARC can accommodate such considerations. Despite some stakeholder concerns that retention periods used in the 2007 determination were too long,⁷⁹ IPART is not in a position to comment on the appropriate length of the different retention periods until it conducts its bottom-up and benchmarking analysis.

Finally, IPART proposes to estimate an aggregate or total CARC per customer – ie, one CARC allowance grouping all customer segments. To do this, it will construct a composite CARC that reflects the proportion of each type of customer a Standard Retailer serves (ie, develop a weighted CARC). Currently, the majority of residential and some small business customers remain on the regulated tariff.

A final allowance for CARC will be derived from the bottom-up estimate in light of reasonableness tests and benchmarking. In its estimation of CARC, IPART will use a discount rate consistent with that developed for the retail margin.

⁷⁷ Frontier Economics, *Mass market new entrant retail costs and retail margin, Final Report*, March 2007, p 15.

⁷⁸ Origin Energy submission, August 2009, p 24. More generally, retailers expressed a view that there has been very little market activity for competitive or negotiated contracts because of the absence of cost-reflective regulated tariffs.

⁷⁹ AGL submission, August 2009, p 30.

What are some of the challenges in estimating customer acquisition and retention costs based on different customer types?

IPART considers it important to go to the level of conceptual detail it has in this Methodology Paper regarding the question of customer acquisition costs to ensure that all stakeholders clearly understand its thinking on this issue. Nevertheless, IPART notes that the data requirements to estimate a CARC allowance based on the different types of customers a Standard Retailer faces are demanding. This section raises some of the potential data challenges with the proposed methodology and possible alternatives in the absence of the required data.

First, the cost items reported by the retailers that relate to acquiring and retaining customers would have to be split into TPC and DARC. They would also have to be evaluated for each customer type. This level of data was not available in the 2007 review. At best, the Standard Retailers provided estimates of their customer acquisition costs (for new customers only) that included the following categories of costs:

- ▼ sales overheads
- ▼ credit checking
- ▼ communications/stationery/information booklets/confirmation packs
- ▼ data and processing/customer transfers/registration
- ▼ door to door/commission/agent cost - per sale
- ▼ postage
- ▼ telecommunications costs (1300 numbers, etc) per sale - inbound/outbound telesales.

The current information request asks the Standard Retailers to report their costs that are directly related to acquiring new customers, broken down into any relevant components. This information can be used to derive a CARC for new customers, possibly split into its components TPC and DARC. However, IPART will have to seek further information from the retailers in order to further split the CARC for new customers by contract type - that is, whether the newly acquired customer is on a negotiated or standard contract. In the absence of this information, IPART will apply its judgement.

The information request also includes a general provision for marketing costs, which as discussed will now be allocated to CARC and no longer form part of ROC. IPART will need to seek further understanding of the composition of marketing costs, in particular the objectives of this spending, to determine appropriate allowances for DARC and TPC for existing customers. Again, in the absence of this information, IPART will apply its judgement.

Second, IPART will need to consider how it will distinguish between customer churn rates for both new and existing customers and regulated and negotiated customers when specifying the number of years over which each CARC should be amortised. The Standard Retailers are currently asked to estimate the average number of years that residential and business customers on a negotiated contract stay with them. The equivalent information is not provided for customers on a standard contract.

However, the Standard Retailers are asked to report separate churn rates for customers on regulated retail tariffs and negotiated contracts. IPART may need to draw on this data to derive a suitable proxy for the expected number of years a Standard Retailer retains each type of customer. IPART notes that this data may not exist for some Standard Retailers or there may be contradictory viewpoints over these churn rates. For example, customers who have already changed retailers could be seen to be more difficult to encourage to change retailer a second time since, presumably, they have already received discounts. On the other hand, these customers may have increased acceptance of competition and be more inclined to change a second time.⁸⁰

Finally, the majority of a Standard Retailer's customer base comprises existing customers and not newly acquired customers. Therefore, the composite CARC will need to reflect the proportion of each customer type Standard Retailers face. In forming this view IPART will consider Standard Retailers' customer numbers by customer type to develop appropriate weights to estimate its composite CARC.

⁸⁰ Frontier Economics, *Mass market new entrant retail costs and retail margin, Final Report*, March 2007, p 36.

5 Establishing the retail margin

Electricity retailers play an aggregating and buffering role between the supply and demand sides of the market. They buy wholesale electricity from generators through the NEM, paying variable spot and contract prices. They pay network charges to distribution businesses for transporting the electricity to the customer. In most cases, they sell electricity to their customers at a fixed bundled price. In the competitive market, retailers charge prices which reflect these costs, their own operating costs, the costs of funding and the costs of managing risks.

For regulated customers, retailers are compensated for some of the risks involved in this activity, and the capital they have invested in their business, through the retail margin component of the regulated price.

IPART needs to establish an appropriate retail margin to include in regulated retail tariffs. To comply with the terms of reference for the 2010 Determination, the retail margin must be appropriate for an efficient NSW Standard Retailer, and should take account of any risks arising from supplying regulated customers that are not compensated for elsewhere in the regulatory package.

IPART's preliminary view is that in establishing the retail margin it should consider the systematic risks involved in supplying electricity to small retail customers and, as discussed in Chapter 3, address the non-systematic risks (including the additional risks stemming from market, policy and regulatory developments) through other parts of the regulatory package.

The sections below provide an overview of IPART's proposed methodology for establishing the retail margin, and discuss its preliminary thinking on some key issues and assumptions involved in applying this method and the risks to be addressed through the retail margin.

5.1 Overview of proposed methodology for establishing the retail margin

As the Issues Paper indicated, IPART proposes to build on the methodology it used to establish the retail margin for the 2007 Determination, and modify it where necessary to ensure this method is consistent with the assessment criteria for the 2010 Determination, and the terms of reference for this determination. In particular, IPART proposes to estimate the retail margin using three alternative approaches: an expected returns approach, a bottom-up approach, and a benchmarking approach:

- ▼ The expected returns approach estimates the expected cashflows that a retailer will earn and the risk associated with these cashflows, and determines a retail margin that will compensate investors for the systematic risk associated with the cashflows.
- ▼ The bottom-up approach starts from an assumed investment base and cost estimates, then determines the earnings and revenue which would allow the retailer to earn an expected return equal to its estimated cost of capital.
- ▼ The benchmarking approach examines reported margins of listed energy utilities in Australian and other countries, using segment data where available, and determines a retail margin in line with these benchmarks.

These approaches will provide a feasible range for the retail margin expressed as a percentage of a retailer's total electricity sales (or EBITDA). IPART proposes to select a point within this range that, in its judgement, reflects an appropriate retail margin for an efficient NSW Standard Retailer and is consistent with the assessment criteria for the 2010 Determination.

Finally, IPART proposes to include an allowance for the retail margin in the 'R' values, which are used to calculate the weighted average price cap for regulated tariffs, as a dollar amount. This will involve determining a dollar amount on total sales, including both retail and network costs.

IPART has engaged SFG to provide expert advice and recommendations on the range for the retail margin. It has asked SFG to augment its modelling and advice on the retail margin for the 2007 Determination to reflect recent developments in the market, policy and regulatory environment. This involves updating key assumptions and considering whether new issues (such as the proposed CPRS) impact the retail margin and if, so, how they should be taken into account.

SFG has provided a report that sets out its proposed methodology for estimating the range for the retail margin, including the modelling assumptions that underlie this methodology.⁸¹ The report is available on IPART's website and IPART seeks stakeholder comments on it.⁸²

⁸¹ SFG, *Estimation of the regulated profit margin for electricity retailers in NSW – Methodology and Assumptions*, August 2009.

⁸² www.ipart.nsw.gov.au

IPART and SFG have done some preliminary thinking on how the developments in the electricity market, policy and regulatory environment affect the methodology for establishing the retail margin. SFG's report indicates that the methodology used for the 2007 Determination implicitly accommodates developments of this type and that the validity of the methodology for establishing the retail margin is not necessarily affected by these developments. In particular, SFG notes that while the national climate change mitigation initiatives may increase the risk associated with purchasing energy (depending on the way that carbon costs are reflected in wholesale market prices), this does not necessarily affect the validity of the methodology used to establish the retail margin.⁸³

In addition, IPART's preliminary thinking on the nature of the risks retailers will face during the 2010 determination period, and where within the regulatory package each risk is best addressed, indicates that the additional risks and uncertainties stemming from specific electricity market, policy and regulatory developments are not systematic risks and therefore are best addressed in setting the energy purchase cost allowance, or through an additional allowance or regulatory mechanism, rather than the retail margin. This reinforces SFG's view that the 2007 methodology can accommodate these developments.

5.2 Key issues involved in applying the proposed methodology

IPART is still considering some issues related to the proposed methodology for establishing the retail margin. One important question it must resolve is whether the dollar allowance for the retail margin should be fixed for the determination period, or recalculated during the period to reflect updates to the energy purchase cost allowance as a result of a periodic review, or to the forecast network costs (eg, as a result of a change in the AER's network determination).

For the 2007 Determination, the retail margin was determined to be 5 per cent EBITDA and was included in the R values as a fixed real dollar amount for each year of the determination period. There was no provision for this amount to be reviewed or updated – for example, as part of the annual review of market-based energy purchase costs or in response to changes in network charges. This means that retailers' actual margins could have been more or less than 5 per cent, depending on the movement in retail and network costs throughout the determination period.

In their responses to the Issues Paper, several stakeholders expressed support for updating the 'margin allowance' when other cost elements are updated.⁸⁴ IPART intends to consider this issue further.

⁸³ SFG, *Estimation of the regulated profit margin for electricity retailers in NSW – Methodology and Assumptions*, August 2009, p 1.

⁸⁴ Country Energy submission, August 2009, p 19.

5.3 Key assumptions involved in applying the proposed methodology

To apply the proposed approach for estimating the energy purchase cost allowance IPART will need to make a number of assumptions and obtain key inputs, including:

- ▼ The appropriate relationship between changes in economic conditions and electricity sales volumes to be used in applying the expected returns approach.
- ▼ The appropriate discount rate (or cost of capital) to be used in applying the expected returns approach.
- ▼ Historical market returns and their variability over time.
- ▼ The proportion of retailers' costs that vary according to the volume of electricity they sell.
- ▼ Information on profit margins of energy utilities in Australia and other countries.
- ▼ Information on recent acquisitions (and proposed acquisitions) of retail electricity businesses, including the businesses' total sale price and number of customers.

The sections below discuss the first two of these assumptions. SFG's report provides a detailed discussion of these and other assumptions it proposes to use as part of its approach to estimating an appropriate retail margin.

5.3.1 What is appropriate relationship between changes in economic conditions and electricity sales volumes?

As discussed above, one of the approaches IPART will use in determining a range for the retail margin is the expected returns approach. This approach estimates the expected cashflows that a retailer will earn under different economic conditions and the risk associated with these cashflows, then determines a retail margin that will compensate investors for the systematic risk associated with the cashflows.

To apply this approach, IPART will need to make an assumption about the appropriate relationship between changes in economic conditions and electricity sales volumes. That is, it will need to decide how a change in economic conditions (such as a rise or fall in GDP or employment growth) can be expected to affect the Standard Retailers' sales of electricity to small retail customers on regulated tariffs.

For the 2007 Determination, Frontier Economics and SFG undertook regression analysis to understand the relationship between economic conditions and energy sales. Based on their advice, IPART assumed a one-for-one relationship (ie, that a one per cent fall in economic conditions will lead to a one per cent fall in electricity sales). IPART had some concerns about whether this assumption was true for electricity sales to small retail customers. However, it decided to adopt the assumption on the basis of Frontier Economics' conclusion that there was insufficient evidence to say that assuming a one-for-one relationship was invalid.

For the 2010 review, SFG will undertake further analysis on the appropriate relationship between economic conditions and electricity sales to small retail customers, including the use of additional data in its time series. This analysis and its conclusions will be presented as part of SFG's draft report.

5.3.2 What is the appropriate discount rate to be used in applying the expected returns approach?

To estimate the retail margin using the expected returns approach, SFG will need to discount cash flows using an assumed discount rate. Like the discount rate for estimating the LRMC of generation (see section 3.3.2), IPART intends to determine an appropriate discount rate for estimating the retail margin, and instruct SFG to use this rate in its analysis.

However, it is important to note that the appropriate discount rate for estimating the retail margin may not necessarily be the same as that for estimating the LRMC of generation. IPART will determine the appropriate rate by considering the real pre-tax WACC, based on an analysis of the relative risk of a retail business and prevailing market conditions.

IPART's preliminary view is that a discount rate of 8.7 per cent is appropriate for estimating the retail margin. This view is based on its initial analysis, which indicates that electricity retail and generation are riskier than network businesses IPART regulates. As such, IPART considers it appropriate to adopt a higher equity beta relative to the other businesses it regulates.

IPART considers that overall, retailers and generators have a lower target gearing level than the other businesses it regulates. However, IPART's preliminary analysis indicates that retail seems to be more risky than generation. In particular, electricity retailers tend to have a lower asset base and higher revenue volatility. As such IPART's preliminary view is that electricity retailers would have a lower target gearing level than generators.

Appendix A provides detail on the key market parameters underlying this preliminary view. IPART intends to update these parameters as close as possible to the date of its decision.

5.4 Key risks to be addressed through the retail margin

IPART's preliminary view is that the role of the retail margin is to compensate the Standard Retailers, and ultimately their investors or equity holders, for the systematic risks involved in supplying electricity to small retail customers on regulated tariffs. Systematic risks are those that result from exposure to overall economic conditions (such as rises or falls in GDP and employment). As Chapter 2 indicated, IPART's preliminary thinking on the specific risks the Standard Retailers will face over the 2010 determination period identified that many risks have both

systematic and non-systematic components and that at least three risks may have systematic components which need to be compensated in the retail margin:

- ▼ The risk of variation in the regulated load profile (ie, that the actual regulated load profile is different to that assumed in setting regulated tariffs, but still within the normal range). The variation attributed to economic conditions is systematic.
- ▼ The risk of variation in wholesale electricity spot and contract prices (ie, that actual wholesale price outcomes are different to those assumed in setting regulated tariffs, but still within the normal range). The variation attributed to economic conditions is systematic.
- ▼ General business risk (ie, that actual costs and revenues are different to those assumed in setting regulated tariffs due to factors such as unexpected changes in interest rates or exchange rates, equipment failures, or fraud).

In IPART's view, as Chapter 3 discussed, the risks arising from specific electricity market, policy and regulatory developments since 2007 can largely be characterised as non-systematic risks. IPART's preliminary view is that non-systematic risks, including these risks, are best considered and compensated for through other allowances and regulatory mechanisms, not the retail margin.

IPART notes that stakeholders who made submissions in response to the Issues Paper expressed mixed views on the retail margin. Some argued that the additional risk stemming from market, policy and regulatory developments should be compensated for by establishing a higher retail margin.⁸⁵ Some also argued that the retail margin should be set at the top of the feasible range to facilitate retail market competition.⁸⁶ However, others noted that increasing the margin to facilitate competition is not in the long-term interest of customers.⁸⁷

⁸⁵ Country Energy submission, August 2009, p 22; Integral Energy submission, August 2009, p 9; TruEnergy submission, August 2009, p 8.

⁸⁶ TruEnergy submission, August 2009, p 8.

⁸⁷ NCOSS submission, August 2009, p 6.



Appendices

A Discount rate assumption

The weighted average cost of capital (WACC) for a business is typically used as the discount rate. The WACC for a business is the expected cost of the various classes of capital (such as debt and equity), weighted to take into account the proportion of its total capital that each class represents.

IPART determines the real pre-tax WACC based its own analysis of the relative risk of the businesses it regulates and on prevailing market conditions.

There are a number of input parameters to consider in determining an appropriate WACC range. Interest rates, inflation and debt margin are dependent on current market rates. The market risk premium, tax rate and dividend imputation factor do not vary with the nature of the business. However, the equity beta, capital structure and debt margin vary with the nature of the business.

The key issue in the determination of a commercial cost of capital for electricity retail and generation are the equity beta and the gearing level.

IPART's initial analysis indicates that:

- ▼ relative to other businesses IPART regulates, electricity retail and generation are significantly riskier, and
- ▼ retail seems to be more risky than generation, in particular, electricity retailers tend to have a lower asset base and higher revenue volatility.

IPART's preliminary view is that:

- ▼ overall, retailers and generators have a lower target gearing level than the other businesses IPART regulates
- ▼ electricity retailers have a lower target gearing level than generators, and
- ▼ the equity beta of retailers and generators is likely to be higher than IPART's industry range of 0.8 to 1.0⁸⁸.

IPART's preliminary view is that the commercial WACC for:

- ▼ electricity generators is 8.2 per cent real pre-tax, and
- ▼ electricity retailers is 8.7 per cent.

⁸⁸ This is the equity beta range IPART uses for other utilities it regulates.

Table A.1 Electricity generation WACC – 13 July 2009

	low	midpoint	High
Risk free rate	5.5%	5.5%	5.5%
Inflation adjustment	2.7%	2.7%	2.7%
Market risk premium	5.5%	6.0%	6.5%
Debt margin	2.0%	2.7%	3.4%
Debt funding	50%	50%	50%
Gamma	0.5	0.4	0.3
Equity beta	0.9	1.0	1.1
Cost of equity	10.4%	11.5%	12.6%
Cost of debt	7.5%	8.2%	8.8%
Tax rate	30%	30%	30%
WACC (pre tax real)	7.0%	8.2%	9.5%

Table A.2 Electricity retail WACC – 13 July 2009

	low	midpoint	high
Risk free rate	5.5%	5.5%	5.5%
Inflation adjustment	2.7%	2.7%	2.7%
Market risk premium	5.5%	6.0%	6.5%
Debt margin	2.0%	2.7%	3.4%
Debt funding	40%	40%	40%
Gamma	0.5	0.4	0.3
Equity beta	0.9	1.0	1.1
Cost of equity	10.4%	11.5%	12.6%
Cost of debt	7.5%	8.2%	8.8%
Tax rate	30%	30%	30%
WACC (pre tax real)	7.5%	8.7%	10.2%

List of acronyms

ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
CARC	Customer acquisition and retention costs
CPRS	Carbon Pollution Reduction Scheme
DARC	Direct acquisition and retention costs
EBITDA	Earnings before interest, taxes, depreciation and amortisation
ETEF	Electricity Tariff Equalisation Fund
ESCO	Energy Savings Company
ESS	Energy Savings Scheme
ESC	Energy Savings Certificates
GDP	Gross Domestic Product
GGAS	Greenhouse Gas Abatement Scheme
ICRC	Independent Competition and Regulatory Commission
LRMC	Long Run Marginal Cost
MWh	Megawatt Hour
NEM	National Electricity Market
NSLP	Net System Load Profile
NSW	New South Wales
POE	Probability of Exceedance
QCA	Queensland Competition Authority
REC	Renewable Energy Certificate
RET	Renewable Energy Target
ROC	Retail operating costs
SOO	Statement of Opportunities

SFG	Strategic Finance Group
SRMC	Short Run Marginal Cost
TNSP	Transmission Network Service Provider
TPC	Transfer process costs
WACC	Weighted Average Cost of Capital
WAPC	Weighted Average Price Cap
