AEMC

REVIEW

Australian Energy Market Commission

ISSUES PAPER

Advice on best practice retail price regulation methodology

14 June 2013

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Issues Paper

Inquiries

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

E: aemc@aemc.gov.au
T: (02) 8296 7800
F: (02) 8296 7899

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About the AEMC

The Council of Australian Governments (COAG), through its then Ministerial Council on Energy (MCE), established the Australian Energy Market Commission (AEMC) in July 2005. In June 2011, COAG established the Standing Council on Energy and Resources (SCER) to replace the MCE. The AEMC has two main functions. We make and amend the national electricity, gas and energy retail rules, and we conduct independent reviews of the energy markets for the SCER.

Executive summary

Most small electricity customers can choose to be supplied under a standard electricity contract or under a competitive market offer.[1] In all states and territories, except for Victoria and South Australia, the price of standard electricity contracts is set by a jurisdictional regulator or government. The price of market offers is set by retailers.

The approach taken to setting the regulated standard contract price for small customers currently differs from jurisdiction to jurisdiction.[2] For example, jurisdictions adopt a range of different approaches to estimating the wholesale energy cost component of the regulated retail price.

Decisions about the retention of retail price regulation in contestable markets and the overarching form of regulation are made by jurisdictional governments.

The purpose of our advice

The Standing Council on Energy and Resources (SCER) has requested the AEMC provide advice on a best practice methodology for the regulation of retail electricity prices for small customers. The terms of reference for this advice indicate that jurisdictions may choose to adopt this methodology where the regulation of retail prices is retained. Jurisdictions may also consider allocating regulatory responsibility to the Australian Energy Regulator.[3] This paper sets out the proposed approach and scope for our advice, as well as a number of issues for stakeholder comment.

AEMC's approach to advice

A stable, clear and coherent objective is key to effective retail price regulation. Once this has been established, the objective can assist regulators and governments in making subsequent decisions in relation to how retail prices should be regulated.

Therefore, in undertaking this advice the AEMC has articulated a proposed objective and principles for setting regulated retail prices, which will be used to guide the development of the best practice methodology. The AEMC has sought to create an objective for retail electricity price regulation that can accommodate the differing retail market characteristics that are in place across the jurisdictions.

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1 Small retail electricity customers are currently unable to be supplied under a market offer in Western Australia and Tasmania. The AEMC understand that, while the Northern Territory government allows for this choice, there are no retailers other than the regulated incumbent offering competitive market offers.

2 Throughout the remainder of this paper we refer to this standard electricity contract price, set by jurisdictional regulators or the governments as the "regulated retail price".

3 SCER, *Terms of Reference: Australian Energy Market Commission (AEMC) Reporting On A Best Practice Retail Electricity Pricing Methodology*, 2 May 2013.

The AEMC is seeking stakeholder views in relation to our proposed objective and principles.

The AEMC will identify the different methods for setting regulated retail prices and assess these methods against the objectives and principles. This analysis will then form the basis of the AEMC's final advice.

Proposed objective for retail price regulation

The AEMC's proposed objective for retail price regulation is set out in Box 1.

Box 1: Proposed objective for retail electricity price regulation

Having regard to the long-term interests of customers, retail price regulation should determine electricity prices for small customers, which:

- reflect the efficient costs of providing retail electricity services; and
- facilitate the development of competition in retail electricity markets, where competition may be feasible.

Key cost components in regulating retail electricity prices

The AEMC invites stakeholder feedback on all the issues raised in this paper. In addition to feedback on the proposed objective and principles, the AEMC is also particularly interested in stakeholder views in relation to the most appropriate method for determining the following key components of the regulated retail price:

- wholesale energy costs;
- retail margins; and
- environmental scheme costs.

These cost components in particular can present cost recovery risks for retailers, which may affect their willingness to enter retail markets. This in turn has implications for the level of competition and choice customers have in determining how their electricity is supplied.

Wholesale energy costs

The wholesale energy cost allowance is one of the largest cost components in regulated retail prices, making it a significant focus for regulators when setting regulated retail electricity prices. In Australia, the wholesale energy cost has been calculated using either a long run marginal cost approach, a market based approach, or a combination of these.

The methods used by regulators can either estimate the wholesale energy cost to recover the efficient costs retailers face at a particular point in time, or have a more long-term focus to provide investment signals for the future reliability of supply. A stable method for estimating the wholesale energy cost allowance can improve the ability of retailers to effectively manage their risks in the wholesale market.

Retail margins

The retail margin represents the return that a retailer requires to attract sufficient capital to finance the ongoing operation of its business. The method for setting the level of margin needs to be carefully considered since setting the margin too high can result in additional costs to customers and inefficient new entry into the market, while setting it too low can discourage efficient entry.

Environmental scheme costs

Jurisdictional regulators also need to incorporate environmental scheme costs into regulated retail prices. These costs include a retailer's costs of complying with the Commonwealth Government's enhanced Renewable Energy Target, as well as jurisdictional schemes. The costs of complying with these schemes are passed directly through to customers. As retailers have a legal liability to comply with these schemes, the method and assumptions which are used by regulators in setting an allowance for these costs requires consideration as it has the potential to lead to a cost recovery risk for retailers.

Next steps

Submissions on this issues paper are requested by no later than **5pm, Friday 12 July 2013**. Stakeholders are encouraged to include any relevant information and comments in their submissions.

As required by SCER's terms of reference, following the consideration of written submissions and issues raised by stakeholders, the AEMC will provide a draft report to jurisdictions and jurisdictional regulators by 30 August 2013. A final report setting out our advice on a best practice method or methods for retail price regulation will then be published by 30 September 2013.

Contents

1 Introduction

The Australian Energy Market Commission (AEMC or Commission) has been requested by the Standing Council on Energy and Resources (SCER) to provide advice on a best practice method for setting regulated retail electricity prices for small customers.[4] This paper sets out our proposed scope and approach, as well as a number of other issues for stakeholder comment.

1.1 Purpose of this advice

Most small electricity customers can choose to be supplied under a standard electricity contract or under a competitive market offer.[5] In all states and territories, except for Victoria and South Australia, the price of standard contracts (the "regulated retail price") is set by a jurisdictional regulator or government.[6] A standard electricity contract is prepared in accordance with the National Energy Retail Law and the National Energy Retail Rules, and provides customers with standard terms and conditions. The price of market offers is set by retailers.

The proportion of small customers on standard contracts in National Electricity Market (NEM) jurisdictions varies significantly, ranging from 40 per cent in New South Wales (NSW)[7] to 100 per cent in Tasmania.[8] In NEM jurisdictions with retail price regulation regulators determine regulated prices based on estimates of wholesale energy costs, transmission and distribution network charges, retailer operating costs and margins, and environmental and jurisdictional scheme costs.[9] Regulators are usually guided in their approach by terms of reference issued by the relevant government.

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4 SCER, *Terms of Reference: Australian Energy Market Commission (AEMC) Reporting On A Best Practice Retail Electricity Pricing Methodology,* 2 May 2013. Hereafter, this is referred to as "Terms of Reference".

5 Small retail electricity customers are currently unable to be supplied under a market offer in Western Australia and Tasmania. The AEMC understand that, while the Northern Territory government allows for this choice, there are no retailers other than the regulated incumbent offering competitive market offers.

6 Throughout the remainder of this paper we refer to this standard electricity contract price, set by jurisdictional regulators or the government as the "regulated retail price".

7 IPART, *Review of regulated retail prices for electricity, 2013 to 2016,* April 2013, p. 1.

8 Since Tasmania does not currently have full retail competition, where customers can choose retailers all small customers currently face regulated prices.

9 We note that the Queensland Government decided to freeze regulated prices for the standard residential tariff (Tariff 11) for 2012-13, subject to the inclusion of costs associated with the carbon tax. As a result, regulated prices for Tariff 11 were determined by the Minister in accordance with the Government's policy. Under its current delegation, the QCA is required to consider how to transition these customers off this frozen tariff, to a more cost-reflective level. See: QCA, *Regulated Retail Electricity Prices 2013-14: Transitional Issues*, October 2012.

In Western Australia and the Northern Territory, the majority of customers are on standing electricity contract prices.[10,11] Regulated prices in these jurisdictions are set by the relevant governments, in accordance with government policy.

In December 2012, the Council of Australian Governments (CoAG) and the SCER reaffirmed their commitment to deregulate retail prices where competition is effective. Accordingly, jurisdictions must provide a plan to SCER by the end of 2013 considering:

- the current state of competition in their jurisdiction;
- policy settings to fulfil this commitment; and
- the potential transfer of responsibility for retail price regulation to the Australian Energy Regulator (AER).[12]

SCER also tasked the AEMC with developing a best practice methodology for retail electricity price regulation - the subject of this paper. Jurisdictions will consider whether to apply this methodology in setting retail electricity prices and in developing their plans to transition to deregulation.[13]

1.1.1 Benefits of a nationally consistent and stable method for setting regulated retail prices

A nationally consistent and stable method for setting regulated retail prices provides market participants in both retail and generation sectors with increased confidence when investing. This has the potential to lead to lower and more stable prices for customers. A nationally consistent and stable method may also promote competition in retail markets, which may lead to increased choice for customers in determining how their electricity is supplied.

Retailers base their decisions on whether to enter a market on a number of factors including:

- the expected revenue of the investment, including a consideration of the presence and level of price regulation;
- the cost structure of the company; and
- the associated risks, including the risk of regulatory change.

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10 AEMC, *Electricity Price Trends: Possible future retail electricity price movements: 1 July 2012 to 30 June 2015,*Final Report, 22 March 2013, pp.131-132.

11 Full retail contestability was introduced to Northern Territory on a progressive basis since 2000. PWC is the sole retailer operating in the Northern Territory. Retail licenses have recently been granted to new entrants, QEnergy in 2011 and ERM Power in 2012. However, we understand that no customers are with these retailers. See: AEMC, *Electricity Price Trends: Possible future retail electricity price movements: 1 July 2012 to 30 June 2015,*Final Report, 22 March 2013, pp.131-132.

12 See recommendations 8.1, 8.2, 8.3 and 8.6 in the CoAG Energy Market Reform - Implementation Plan, December 2012.

13 Terms of Reference, p. 1.

Retailer's investment decisions are in part influenced by the relationship between the expected revenue and cost structure of the business - that is, a consideration of whether a business will be profitable or not. This assessment will be in part informed by the level of price regulation, which influences their expected revenue. The regulated price plays an important role in competitive markets since new entrant retailers essentially compete against this price. Market (or unregulated) prices offered by new retailers are generally at a discount to this regulated price. This enables new retailers to gain customers and market share and allows customers to benefit from lower prices and improved choice and service.

However, where there is uncertainty about how retail prices will be regulated, retailers are less likely to enter into a market. This is because as uncertainty about the regulated price that retailers compete against increases, so does the risk they will not realise their expected returns. A nationally consistent and stable method for setting regulated prices therefore provides potential new entrant retailers with more confidence in making decisions about whether to enter a market. This increases the likelihood of entry, resulting in increased competition and more innovative products for customers.

These benefits from a consistent and stable method for setting regulated retail prices do not preclude changes in the regulatory and policy environment; indeed flexibility to changing circumstances is desirable, but any changes should be transparent and based on well-understood objectives.

Most retailers in the NEM operate portfolios of retail contracts over multiple regions. Consistency in the methods for setting retail prices between regions helps retailers to manage risks in their portfolios. It also reduces administrative costs for these parties, which should result in lower retail prices for customers over the longer term.

While customer participation in Australian retail markets is high by international standards,[14] there appears to be scope to improve customer understanding of the options available to them. Nationally consistent retail market frameworks can strengthen customer participation, which will enable customers to select a retail contract which more closely reflects their needs.

In addition to being stable and transparent, a nationally consistent method must in itself be sound and promote economic efficiency. This is discussed further in section 2.3, along with the broader objectives for retail price regulation.

1.2 Terms of reference for this advice

The AEMC received terms of reference from SCER in May 2013 to develop a best practice method for determining regulated retail electricity prices for small customers.[15] The terms of reference note that jurisdictions may choose to adopt this

14 Though meaningful comparison of the competitiveness of retail markets across the world is difficult, indicators suggest that Australia's retail energy markets have some of the most active customers. See: www.vaasett.com for further information.

15 Terms of Reference, pp. 1-2.

method where regulation remains necessary or they can consider transferring regulatory responsibility to the AER.

Under the terms of reference the AEMC is required to publish a final report by 30 September 2013. SCER has requested the AEMC have particular regard to how the wholesale energy cost component may be determined and ensuring that retail electricity prices reflect the actual cost of supplying electricity to an individual consumer.

The terms of reference require this report to give consideration to the determination of each cost component within regulated retail electricity prices, namely:

- **wholesale energy costs** - includes consideration of the long run marginal cost of generation and a wholesale market based approach (ie based on forward contract and/or spot prices). The AEMC should also consider other costs associated with market participation including fees and payments;

- **network charges** - noting network charges are regulated by the AER and are not subject to this review, the AEMC should only consider this aspect in relation to the pass-through arrangements that apply under retail price regulation or through the application of time of use pricing. This includes ensuring that network costs reflect the actual cost of delivering electricity to consumers with regard to how different consumption patterns place different demands on the electricity grid;

- **retail costs and margins** - the AEMC should consider the margins and efficient costs of retailers; and

- **government policies and energy scheme costs** - the AEMC should broadly consider the most efficient and effective means for regulators of factoring costs (which could be forecast and/or actual) related to relevant government policies and schemes into regulated retail prices.

We may also give consideration to other factors and processes associated with the regulatory determination process, such as the timing and duration of determinations and potential pricing review mechanisms.

The best practice method(s) and approach for regulating retail prices should also:

- reflect the current extent of competition – and be consistent with the removal of regulation in the future, if competition is deemed effective; and

- take account of efficient and cost-reflective pricing to support a viable, competitive and innovative market, in the long-term interest of consumers.

This advice is to relate to the NEM jurisdictions that retain retail price regulation. However, the AEMC is also to have regard to the applicability of this advice to the Northern Territory and Western Australia where practicable.

1.3 Other processes relevant to the Commission's considerations

There is a range of work that the AEMC is currently or has recently undertaken that may have implications for the advice developed here. The most relevant of these are summarised below. However, we note that recent determinations, including the rule change relating to the economic regulation of network service providers[16] may also be relevant.

1.3.1 Review of competition in the retail electricity and natural gas markets in NSW

The AEMC has been asked by SCER to undertake a review and provide advice on the state of competition in the NSW electricity and natural gas retail markets for small customers. A draft report was published on 24 May 2013, which sets out the Commission's draft findings.

The Commission was asked to review the state of competition in the NSW energy markets, and, if competition was found to be effective, provide advice on the appropriate path towards removing price regulation. As set out in the draft report, the AEMC found that competition in the electricity market for small customers in NSW is effective, and so price regulation should be removed. The review did not comment on the current methodology for regulating retail electricity prices in NSW, but still provides useful background to this advice.

The Commission was also asked to review, and provide advice on, the availability and take up of time of use tariffs by small electricity customers in NSW and the effect such tariffs may have on competition. As set out in the draft report, this revealed that while there are a large number of retailers offering time of use tariffs, there are still a number of competition issues affecting participants in this segment of the market. This may have implications for our advice related to the application of time of use network pricing in regulated retail prices.

1.3.2 Retail electricity price movements 2013

The AEMC undertakes a review of future possible retail electricity price trends annually. The objective of the price trends report, requested by CoAG, is to provide information on the likely trends in retail electricity prices, and an understanding of the key drivers of change in these prices.

The pricing trends report covering 1 July 2012 to 30 June 2015 was published in March 2013. The next pricing trends report is due to be published in 2013, covering 1 July 2013 to 30 June 2016.

16 AEMC, *National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012 and National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, Final Rule Determination, 29 November 2012.

This review of retail electricity price movements does not comment on the current jurisdictional methods to setting jurisdictional regulated retail prices. However, the work being undertaken for the current review of retail electricity price movements will provide useful background and context to this advice on best practice method(s).

1.3.3 Proposed changes to annual network price setting arrangements

The Commission has recently commenced a rule change process in response to a rule change request received from the NSW Independent Pricing and Regulatory Tribunal (IPART). This request is in relation to proposed changes to annual network price setting arrangements in Chapters 6 and 6A of the National Electricity Rules (NER).

This rule change, amongst other changes, would bring forward the timing for the publication of network prices to provide regulators, retailers and customers more time to consider the consequent effects from these prices. This may have implications for our advice relating to how network prices are passed through in regulated retail prices.

A consultation paper was recently published for this rule change.

1.3.4 Potential generator market power

The Commission recently concluded a rule change process in response to a rule change request received from the Major Energy Users'. The Major Energy Users submitted a rule change request regarding the potential exercise of market power by generators in the NEM. The Commission determined to not amend the NER in response to this rule change request.[17]

The Commission considered that there is insufficient evidence to support the proposition that substantial market power will be exercised in the current market environment. It did recommend that SCER consider conferring on the AER a monitoring function and adding accountability mechanisms to the AER's current information gathering powers to support this monitoring function.

In order to evaluate this rule change request, the Commission established a clear definition of "market power", and considered how this concept should be applied in the context of the NEM. The Commission considered that efficient long term wholesale prices (with this measured by the economic long run marginal cost) should, averaged over time, be expected to be at the level required to recover the cost of building new generation or transmission capacity to satisfy customer demand. This analysis has implications for our consideration of how long term wholesale energy costs can be estimated.

17 AEMC, *Potential Generator Market Power in the NEM*, Final Rule Determination, 26 April 2013.

1.3.5 Power of choice review

Over the course of 2011-12, the Commission developed a substantial reform package for the NEM through its Power of choice review. The objective of the package was to provide households, businesses and industry with more opportunities to make informed choices about the way they use electricity and manage expenditure. The final report for the review was submitted to SCER in November 2012.

The report included a number of recommendations relating to introducing more efficient and flexible retail energy pricing offers for small customers through the introduction of cost reflective electricity distribution network pricing structures. This has implications for our advice on the application of time of use network pricing in regulated retail prices.

1.4 Stakeholder consultation

1.4.1 Consultation

SCER has requested the AEMC consult with jurisdictions and relevant jurisdictional pricing regulators during the preparation of our advice. Where appropriate, the AEMC may also consider consultation with key stakeholders in the preparation of its advice, including with energy retailers and consumer groups.

The purpose of this paper is to invite stakeholder views on various aspects associated with the methodologies used in setting regulated retail prices. Responses to this paper will further inform and enhance the AEMC's understanding of these issues.

To assist stakeholders, this paper provides background information on the common methodologies used to estimate components of regulated retail prices, and sets out the specific matters that are pertinent to this advice. Stakeholders are invited to make submissions on the questions raised in this paper and any other issues they consider relevant to this advice.

As required by our terms of reference, the AEMC will provide its draft report to jurisdictions and jurisdictional regulators for their review and comment by 30 August 2013. The AEMC's final report will be provided to SCER, and published on the AEMC's website by 30 September 2013.[18]

1.4.2 Lodging submissions

Written submissions from stakeholders and interested parties in response to this Issues Paper must be lodged with the AEMC **by no later than 5pm, Friday 12 July 2013.**

Submissions should refer to AEMC project number "EMO0027" and be sent electronically through the AEMC's online lodgement facility at www.aemc.gov.au.

18 Terms of Reference, p. 3.

All submissions received during the course of this advice will be published on the AEMC's website, subject to any claims for confidentiality.

In order for this advice to be completed by no later than 30 September 2013, the AEMC must adhere to strict deadlines. While the AEMC will have full regard to all submissions lodged within the specified time period, late submissions may not be afforded the same level of consideration. To ensure the AEMC is able to fully consider all submissions, we request that stakeholders lodge their submissions by no later than the due date.

1.5 Structure of the paper

The remainder of this report is structured as follows:

- chapter 2 sets out the scope, and the objective and principles that will be used to guide this advice;
- chapter 3 outlines issues relating to wholesale energy costs;
- chapter 4 outlines issues relating to network costs;
- chapter 5 outlines issues relating to retail operating costs, retail margins and a competition allowance;
- chapter 6 outlines issues relating to environmental and jurisdictional scheme costs;
- chapter 7 outlines issues relating to form and timing of the regulation of regulated retail electricity prices; and
- appendix A provides a summary of the current jurisdictional approaches to estimating regulated retail electricity prices.

2 Approach, Objective and Principles

This chapter sets out the AEMC's proposed approach to and scope of this advice. It then identifies and discusses the proposed objective of retail price regulation as well as the principles that will be used to guide the development of this advice.

2.1 Approach

The AEMC intends to base our advice to SCER on the following approach:

- identify the objective of regulating retail prices;
- identify appropriate principles to guide the development of the best practice methodology for the setting of regulated retail prices;
- collect information on the different approaches to setting regulated retail prices, and assess the approaches against the overarching objective and principles developed above; and
- recommend a best practice method or methods.

The objective for the regulation of retail prices will need to be clearly articulated as it will frame and guide our subsequent advice. The objective of regulating retail prices is discussed in further detail below in section 2.3.

After developing this objective, the AEMC will identify principles for the setting of regulated retail prices. These will draw on the overarching objective for the regulation of retail prices, and aim to guide the assessment of different methods. These are discussed in further detail below in section 2.4.

We will then collect information and data to enable the development of a best practice method. This will involve reviewing approaches to: estimating the different cost components of regulated retail prices; as well as the form and timing of retail price determinations. In the first instance, we will review the current methods used by jurisdictional regulators in Australia.[19] Where relevant, we will also review international best practice. The AEMC will then consider the extent to which each of these approaches is likely to satisfy the objective and identified principles.

Finally, we will set out our recommendations on the best practice method or methods for setting regulated retail prices. These recommendations will be contained in our final report, which will be published at the end of September 2013.

19 Throughout the remainder of this paper, the term "jurisdictional regulator" is used to refer to the party that sets regulated retail prices. In some jurisdictions this may include the relevant government. For example, in Western Australia and Northern Territory the jurisdictional government sets regulated retail prices.

Question 1 Approach to advice

(a) Is the proposed approach to the advice appropriate for developing a best practice methodology for setting regulated retail prices?

(b) Are there any specific factors in relation to Western Australia and/or the Northern Territory that the AEMC should consider in developing a best practice method for regulated retail prices?

2.2 Scope

Our scope has been framed by our terms of reference, as discussed in section 1.2.

In summary, the AEMC is required to develop a best practice method or methods for determining regulated retail electricity prices for small customers. The advice will give consideration to the determination of each cost component within regulated retail electricity prices. Further, under the terms of reference the AEMC may also give consideration to other factors and processes associated with the retail price determination process, such as the timing and duration of determinations and potential pricing review mechanisms.

The terms of reference focus this advice on NEM jurisdictions. However, the AEMC is also to have regard to the applicability of the advice to the Northern Territory and Western Australia where practicable. We will consider the extent to which the circumstances in these jurisdictions would require a different best practice method.

There are a number of potentially related issues that the AEMC considers are out of scope for this advice. These are either excluded under our terms of reference, or are being considered and addressed through separate processes. We will therefore not make recommendations in relation to these matters in this advice. Specifically, we consider the following to be out of scope:

- setting of network charges – network revenues or prices are determined by the AER and are more appropriately considered through the Commission's rule change process for the NER;[20]
- setting of regulated retail electricity prices for large customers - while some jurisdictions regulate retail electricity prices for large customers, the terms of reference explicitly refer to the setting of regulated retail electricity prices for small customers;

20 The AEMC has also recently concluded a rule change process on new rules to regulate electricity network prices. The rules improve the strength and capacity of the regulator to determine network price increases, so that customers do not pay more than necessary for reliable supplies of electricity and gas. See: AEMC, *National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012 and National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, Final Rule Determination, 29 November 2012.

- non-price elements - any regulated non-price charges (eg security deposits) will not be considered in this advice since these do not form part of the cost components that we are required to look at under our terms of reference;

- affordability and specific measures to protect vulnerable customers (eg rebates and subsidies) - these issues raise policy considerations that are best addressed by the relevant governments;

- assessment of the level of retail electricity competition in jurisdictions - the AEMC assesses, in a separate process, the effectiveness of retail competition in each NEM jurisdiction;[21] and

- quality of service - to a large extent quality of service issues are covered by the National Energy Retail Rules. The National Energy Retail Rules are primarily focussed on the sale and supply of energy to small retail customers and set out the detailed content of the consumer protection measures and model contracts that govern the relationships between customers, retailers and distributors.[22]

2.3 Objectives

2.3.1 National Electricity Objective

The overarching objective guiding our approach is the National Electricity Objective (the NEO). The NEO is set out in section 7 of the National Electricity Law (NEL), which states:

> "The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to -
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system."

In developing this advice, we will consider how the best practice methodology will better allow for the NEO to be met.

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21 The AEMC has previously reviewed the effectiveness of competition in the Victorian, South Australian and ACT markets. The AEMC is currently conducting its review of the effectiveness of competition in the NSW energy retail markets.

22 The National Energy Customer Framework has commenced in the ACT, Tasmania and South Australia. The NSW government has announced that this framework will commence in NSW on 1 July 2013. Other jurisdictions are expected to follow in accordance with their own implementation plans.

2.3.2 Objective of retail price regulation

For the purposes of this advice, we will also articulate an objective for retail price regulation, which will be consistent with the NEO, and will be used to guide the development of our advice.

A stable, clear and coherent objective for price regulation is important as it can give the regulator a clearly defined target, and provide some certainty for retailers about the approach to setting regulated prices. Once established the objective should be used to guide all subsequent decisions in relation how regulated prices are set.

A clear objective allows the industry and customers to understand the basis on which the regulator makes decisions. It also provides consistency across time, while still allowing the flexibility for a regulator to adapt their approach for changes in circumstances.

We have sought to articulate, for comment, an objective for retail electricity price regulation that is sufficiently flexible that it can apply both to jurisdictions that are advanced in their transition to competitive retail markets, and to those jurisdictions that currently have residential retail electricity markets that display more monopolistic characteristics.

This section steps through the process we have used in developing this objective.

As noted above, the overarching objective to our approach is the NEO and so this should be reflected in the objective for retail price regulation. Therefore, retail price regulation should have regard to the long term interests of customers. Where competition can be developed, effective competitive markets are generally the best means of promoting customers' long term interests. The benefits of competition include:

- prices which trend to efficient costs over time;
- a quality of service matching customer expectations; and
- a choice of products and services consistent with customer preferences.

Given these benefits, regulation should only be applied where competition is not possible, or where competition is not sufficiently developed to provide these benefits. Therefore, regulation aims to act as a proxy for competitive outcomes.

Where competition is feasible, regulation should also seek to facilitate competition in a way that will produce efficient long term outcomes. Efficient entry into the retail market should be encouraged. Therefore, part of the objective of retail price regulation should also be to facilitate the development of competition.

One significant benefit that competition provides is that prices trend to efficient levels over time. Efficient levels comprise two elements: cost efficiency, and cost reflectivity. These are discussed below.

Cost efficiency

Price regulation should allow businesses to recover only those costs that are efficient.[23] This means that for a given cost the business should maximise its output to customers, or for a given level of output the business should minimise its input costs. This should ensure that customers pay no more, and no less, than that necessary to receive the service.

When expressed in this way "cost efficiency" is a static concept. However, consistent with operating in the long term interests of customers, the costs that a regulator allows retailers to recover under a regulated price should reflect the most efficient costs across time. Consideration of efficient costs should not be limited to a single point in time, or even a short timeframe.[24]

The Commission notes that there may be a trade-off between facilitating long-term competitive outcomes, and short-term costs and lower prices. Competitive markets provide cost efficient outcomes over the *long*-term. However, unless carefully formulated, regulation may promote lower costs and prices in the *short*-term, which may discourage retailers from entering the market.

An example of this trade-off relating to setting the retail operating cost component of the regulated price. One approach is to base this component on the costs of the incumbent monopoly retailer. As some costs for this retailer are sunk, the component would reflect the short-term cost of supplying electricity. However, setting costs on this basis may not allow new entrant retailers to recover their costs, which may discourage new entry and competition over the longer term and the benefits this provides to customers.

Cost reflectivity

Regulation should also seek to set cost reflective prices. That is, the prices charged to the customer should reflect the efficient costs incurred by the retailer in providing that service to that customer.

This will produce efficient outcomes because a customer's decision on whether to use electricity will be based on the cost of providing that electricity service. Where customers are paying the full cost - but no more - of their electricity service, retailers will be spending just enough to provide electricity services to all of their customers.

Proposed objective of retail electricity price regulation

The above considerations have resulted in the AEMC articulating the following proposed objective for the regulation of retail electricity prices:

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23 "Efficient costs" in this paper refers to the efficient costs of a retailer operating under current market conditions, rather than a theoretically efficient market.

24 Cost efficiency should be pursued in the long term, which may require the regulator or business to make assumptions about the future to allow this to occur.

Box 2.1: Proposed objective of retail price regulation

Having regard to the long-term interests of customers, retail price regulation should determine electricity prices for small customers, which:

- reflect the efficient costs of providing retail electricity services; and
- facilitate the development of competition in retail electricity markets, where competition may be feasible.

The ordering of this objective reflects that it is important that retail price regulation seeks to achieve long term efficient costs even where it is seeking to facilitate the development of competition.

Question 2 Proposed objective of the advice

Is the proposed objective appropriate in guiding the development of the AEMC's advice?

2.4 Principles

The above proposed objective gives rise to a number of underlying principles. These principles will be used to assess alternative methods for setting retail electricity prices and to guide the development of a best practice methodology. These proposed principles are well established, and are consistent with regulatory best practice. In selecting these principles we have had regard to existing jurisdictional and international principles for retail price regulation.[25]

2.4.1 Principle 1: Cost efficiency

Regulated retail prices should allow retailers to recover the efficient costs of supplying electricity to customers on regulated retail prices. This means that customers should pay no more than they need to in purchasing electricity, since retail prices will drive retailers to operate on a more efficient basis.

2.4.2 Principle 2: Cost reflectivity

Prices should reflect the underlying costs of supplying electricity. This means the choices that customers make should result in more efficient consumption decisions, accurately reflecting the underlying costs of providing the electricity service. For

25 For example see: IPART, Review of regulated retail prices and charges for electricity 2013 to 2016, Issues Paper, November 2012; QCA, Review of Electricity Pricing and Tariff Structures - Stage 1, Final Report, September 2009; ICRC, Retail prices for non-contestable electricity customers - 2012-14, December 2011; OTTER, Investigation of maximum prices for declared retail electricity services on mainland Tasmania, Final Report, October 2010; and European Union Court of Justice, Federutility and Others v Autorita per l'energia elettriica e il gas, Case C-265/08, 20 April 2010.

example, faced with cost reflective prices, some customers may choose to reduce or cease consumption in high demand periods. This may have the effect of reducing their bills in the short term and potentially avoiding the need for some investment which would otherwise be required in the long term.

Customers' consumption choices should be efficient where:

- prices reflect costs;
- prices are transparent; and
- customers are informed about their options to manage their consumption.

2.4.3 Principle 3: Transparency

The objective, principles, methodology and the outputs (prices) of retail price regulation should all be clear and transparent.

A transparent methodology helps to facilitate predictability of approach over time, benefiting retailers and customers. Retailers would have improved confidence to contract with generators. Therefore, retailers would be able to mitigate risks more easily in contracting, which should result in lower costs to customers.

Stakeholders should be able to understand how any change in the underlying assumptions will impact the output prices. This will also increase retailer and customer confidence, since they will be able to see how any market changes will affect retail costs and prices. This should improve the ability of both retailers and customers to effectively engage in the retail market.

Clarity and transparency in the methodology for setting regulated retail prices also enables all stakeholders to assess whether the methodology is consistent with meeting the overall objective for retail price regulation.

2.4.4 Principle 4: Open and consultative process

Regulated retail prices should be set through an open and consultative process, which engages customers and industry.

Effective stakeholder participation can promote more efficient market outcomes. First, it helps to address the information asymmetry that a regulator faces - it is widely accepted that a regulated business has better cost and market information than that possessed by the regulator. Increasing stakeholder participation can, in part, help to address this problem, since more information may be provided to the regulator to assist its assessment.

An open and consultative process also brings a more diverse set of views to setting the structure and composition of the regulated retail price. This assists the regulator in considering the range of potential implications in setting the regulated retail price. An

open and consultative process may also increase customer and customer representative participation in the process and help to deliver outcomes that are in the long term interests of customers.

Finally, effective stakeholder participation can also help customers understand more about their bills, which may help customers to manage their expenditure on electricity.

2.4.5 Principle 5: Predictability and stability

Consistency, both over time and across jurisdictions, in the methods used in setting retail prices provides stability and predictability for market participants in both generation and retail sectors. This decreases the risks associated with investment in these businesses, as discussed in section 1.1.

Confidence in the regulatory and policy environment may allow more efficient contracts to be struck between generators and retailers. Increased confidence may enable generators and retailers to negotiate longer term contracts, which may further increase certainty in the market. Lower risks may also lead to lower costs for customers, which may result in lower prices.

Such confidence does not preclude changes in the regulatory and policy environment, indeed some flexibility to accommodate changes in market or external conditions is desirable. However, the changes should be transparent and based on well-understood objectives. If they are not, there is a risk that confidence in investing in retail businesses will be undermined since investment decisions include consideration of expected future costs and cash flows. If investment is undermined, efficient investment may not occur.

2.4.6 Principle 6: Minimising the administrative burden

The methodology associated with setting regulated prices should not impose undue regulatory or administrative costs for the regulator and key stakeholders.

This implies that methodologies that impose large administrative costs should only be used where the benefits to be gained outweigh the greater burden.

These administrative costs are particularly important for both retailers and jurisdictional regulators, since regulated retail prices are typically set on a much shorter time frame than regulated network costs.[26] This largely reflects the characteristics of retailer costs, which are subject to more frequent changes. For example, wholesale energy costs are influenced by the spot market, which operates on a half hourly basis.

26 Regulated retail prices are typically set for between one to three years; whereas network businesses face regulatory determinations of five years.

2.4.7 Principle 7: Appropriate allocation of risk

The methods associated with setting cost components should reflect the appropriate allocation of risk between retailers and customers. Risks should always be allocated to the party that is best able to manage that risk. Further, the method should reflect, and be commensurate with, the level of risk that the relevant party faces.

If the risks are unmanageable, or cannot be mitigated, then mechanisms should be put in place to allocate the risk to the party who can best bear them.

Question 3 Principles for the advice

Are the proposed principles appropriate in guiding the development of the AEMC's advice?

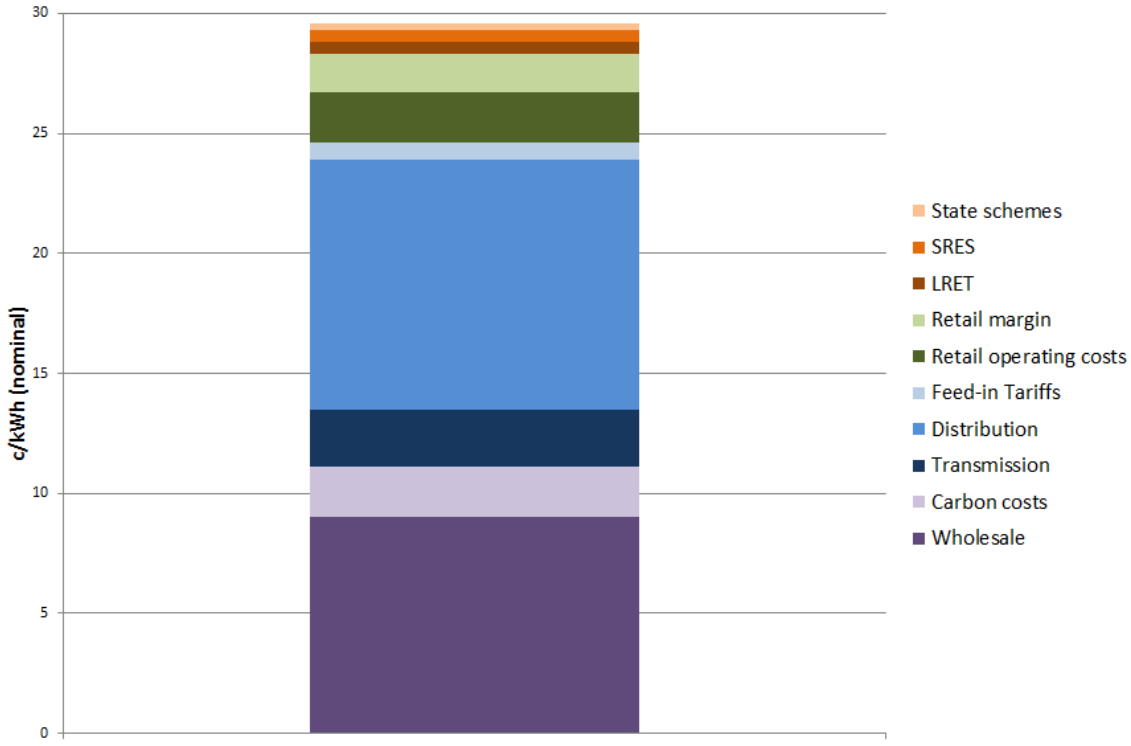
3 Wholesale energy costs

In determining the revenue that should be recovered under regulated retail prices, the jurisdictional regulator generally estimates the efficient costs to be incurred by the retailer. These costs are usually categorised in "cost components". Together these cost components comprise the retail cost stack, which is used to set the regulated retail price.

Chapters 3 through 6 discuss the different cost components of the retail cost stack, with these reflecting the costs that a retailer faces in supplying electricity to customers.

Figure 3.1 provides an indicative national residential price cost stack for 2012/13.

Figure 3.1 National - residential price cost stack (2012/13)



This chapter discusses and provides background on the methods associated with estimating the wholesale energy cost components, which allows retailers to recover the costs of purchasing electricity in the wholesale energy market.

3.1 Structure of this chapter

The wholesale energy cost component for retailers typically comprises allowances for:

- energy purchase costs, reflecting the costs associated with purchasing electricity through the wholesale market;

- NEM market and ancillary service fees, reflecting the costs associated with retailers operating in the NEM;
- the costs associated with energy losses, which occur when electricity is transported along the transmission and distribution networks; and
- environmental schemes and jurisdictional schemes, reflecting costs retailers incur in complying with these schemes.

Section 3.2 below focuses on the context, methodologies for estimating, and issues in relation to, the energy purchase costs.

NEM market and ancillary service fees are a much smaller proportion of the total wholesale energy costs, and are briefly discussed in section 3.3.

Allowances for the costs associated with energy losses are also a much smaller proportion of the total wholesale energy cost component, and are briefly discussed in section 3.4.

Jurisdictional regulators also typically include costs associated with the enhanced Renewable Energy Target scheme, and jurisdictional schemes in wholesale energy costs. We consider these costs in chapter 6.

3.2 Energy purchase costs

3.2.1 Context

Retailers are responsible for purchasing energy from the wholesale market to supply customers on regulated prices. Retailers can buy energy directly from the wholesale spot market.

However, the NEM has large variations in price, with prices ranging between a floor of -$1,000/MWh and a ceiling of $12,900/MWh.[27] The spot price varies significantly depending on the time of day, season and underlying load profile. For example, prices are typically high on hot summer days where high levels of air conditioning are being used. The AEMC notes that price changes in the spot market may not always be predictable.

Retailers can manage this risk in different ways: through the contract market; entering into long-term power purchase agreements; or investing in generation themselves.

Retailers may hedge energy purchases through the contract market to manage this risk. This involves purchasing financial derivatives, which are contractual instruments used to manage forward price risk. These provide a mechanism for retailers to lock in future prices, but do not guarantee the physical delivery of electricity.

27 We note that this ceiling will rise to $13,100/MWh from 1 July 2013. See: AEMC, *Schedule of reliability settings*, 28 February 2013.

Alternatively, retailers may also enter into long-term power purchase agreements to manage price volatility risk. These are contracts between retailers and generators for the output of a generator at an agreed price.[28]

However, it is difficult to forecast the prices for these contracts and/or agreements. Prices change depending on the balance between the amount of generation in the market, and demand for electricity from customers, including retailers. Since investment in new generation is relatively lumpy, the entry of a new generator into a market where this balance is tight may result in a significant decrease in prices as the market adjusts. Therefore, contract prices and volumes may change as the supply of, and demand for, electricity changes over time.

The energy purchase costs included in regulated retail prices are based on an allowance estimated by the relevant jurisdictional regulator.[29] This enables the retailer to recover the efficient costs associated with the purchase of energy. Therefore, a retailer's profitability is partly a function of the costs it incurs in purchasing wholesale energy, relative to the allowance that is provided by the regulator.

The wholesale energy cost is one of the largest cost components in regulated retail prices – approximately 30 per cent of the retail cost stack.[30] The relative size of the wholesale cost component and its impacts on retailer profitability mean that the regulator's choice of method for setting this allowance is a key decision.

3.2.2 Methodologies

There are two broad approaches that are commonly used by regulators to estimate a wholesale energy purchase cost allowance: a long-run marginal cost (LRMC); or a market based approach.

A LRMC approach estimates a retailer's energy purchase costs based on the long term cost of providing enough generation to meet demand. A market based approach assesses a retailer's energy purchase costs using an estimate of wholesale prices under prevailing market conditions.

Within each of these broad approaches, there are a number of different methods that can be used. These are discussed in more detail below.

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28 The AEMC also notes that retailers can invest in generation assets themselves, allowing retailers to have more control over the generation of electricity. This essentially involves the retailer entering into a "contract" with itself for electricity.

29 This includes the impact of the current carbon pricing mechanism.

30 AEMC, *Electricity Price Trends Final Report: Possible future retail electricity price movements: 1 July 2012 to 30 June 2015*, 22 March 2013.

Long run marginal cost approaches

The LRMC is the cost of supplying a specified, permanent change in demand, allowing for future augmentations in supply.[31] This assumes that all factors of production can be varied and new generation is able to enter the electricity market.

Importantly, the LRMC is not empirically observable, and has to be estimated. There are numerous ways to estimate a LRMC in electricity. However, the three most common methods are:

- average incremental cost method - which assumes that the existing mix of generation is in place, and that the required load can be served using both existing and new generation. This estimates the least cost combination of generation to satisfy a change in demand for a given year;
- perturbation (otherwise known as Turvey) method – which assumes that the existing mix of generation is in place, and that the required load can be served using both existing and new generation. This estimates the cost of bringing forward new generation to meet an incremental change in demand over a future time period; and
- greenfields method – which assumes that there is currently no generation to serve the required load. This estimates the least cost of an entire new, optimal generation system to satisfy demand in a given year.

There is also an alternative approach, which can be considered similar to a LRMC approach. This is the levelised unit electricity cost method. This is a project specific calculation of the constant electricity price required to cover all relevant costs given a particular set of assumptions.

Each of these methods is discussed in greater detail below.

Average incremental cost method

The average incremental cost method represents a relatively quick and effective means of estimating the LRMC, but is generally considered to be a less precise method than the perturbation method. The average incremental cost method uses information on new entrant technology costs to calculate the least cost combination of generation capacity to satisfy a given demand for a given year. It also makes some simplifying assumptions, including that existing capacity is already optimal and that demand grows at a constant rate into the future.

Existing generation is taken into account. The capital costs of existing and committed generation plants are treated as sunk, and so do not influence the estimate of the LRMC. However, variable costs associated with these plants are considered. Both the capital and operating costs associated with uncommitted, new generation are considered. Therefore, the capital costs of generation will not be reflected in the

31 This change can be either an increase in demand, or a decrease.

estimate of LRMC unless a new generation plant is needed. This is appropriate since these costs affect investment decisions.

Perturbation method

While generally more complex and time intensive to perform than the average incremental cost method, the perturbation method is generally considered to be provide a more accurate approximation of LRMC.

This method develops two separate future investment profiles based on a least-cost combination of generation capacity to satisfy a future average annual demand. One investment profile is based on satisfying an existing expectation of future average annual and maximum demand and the other is based on satisfying a hypothetical incremental change in demand over the same period.

As in the average incremental cost method, existing generation is taken into account. The capital costs of generation are not reflected in the estimate of LRMC unless a new generation plant is needed.

Greenfields method

Unlike the above two methods, the greenfields method builds and prices an entire new optimised generation system - ignoring any existing generation. Estimates under this approach do not take into account existing generation levels in the system, eg whether there is spare or constrained capacity. These factors have influences on the wholesale market price, as discussed above.

Levelised unit electricity cost method

Strictly speaking, this approach is not an LRMC approach. It does not optimise the costs of generation against changes in demand. However, it can still be used to assess the costs of satisfying future changes in demand.

The Alberta Market Surveillance Administrator considers that this method can be interpreted as a "limited" case of the perturbation method.[32] As discussed above, the perturbation method determines the lowest cost way of satisfying a permanent change in demand, which could include a combination of existing and new generation plant. In contrast, the levelised unit electricity cost method assumes that a change in demand is always met by new generation capacity. However, such a method may not necessarily always be economically efficient, as some of the existing generation capacity could be used to meet part of the increase in demand. Therefore, it can be considered a "limited" case of the perturbation method.

The levelised unit electricity cost method is relatively simple to compute compared to the above three LRMC approaches, which involve optimising costs against demand forecasts. While it is easier to calculate, it is highly dependent on the assumptions

32 Market Surveillance Administrator, *A Comparison of the Long-Run Marginal Cost and Price of Electricity in Alberta: An assessment undertaken as part of the 2012 State of the Market Report,* 10 December 2012, p. 6.

about what type of new generation plant will be built and how much of its capacity will be used.

All methods to calculate LRMC involve a number of underlying assumptions, which influence the results of the analysis. One key assumption is whether the LRMC assumes that changes in demand will be met by a single generation plant, or by a combination of generation plants with varying cost structures.[33] A typical method is to assume that the next plant to be built will be a combined cycle gas turbine plant. However, this does not take into account the practical realities of the generation system in the NEM, which dispatches an economically efficient combination of generation plants. Modelling a combination of generation plants may be difficult in practice.

Market based approaches

A market based approach aims to simulate the operation of the wholesale energy market, which reflects the short-term, or more immediate costs that retailers face.

There are various methods which can be used to estimate a market based wholesale cost. However, the two most common methods are:

- Market modelling method – which simulates the operation of the wholesale energy market, having regard to the profit maximising behaviour of market participants', given participants portfolios, actual and forecast supply and demand conditions, and the likely generation mix and resulting regional reference price. The outputs of this model are then used to develop a reasonable representation of the costs likely to be faced by a retailer that has adopted an efficient risk hedging strategy to meet the load of regulated small customers.

- Futures/forward contract method – this involves the consideration of publicly available forward contract prices and/or futures price for the NEM, ie data on the financial derivatives. Since these aim to "lock in" future wholesale prices, forward contract prices can represent the costs a retailer would incur in buying electricity. Forward contract prices are either averaged over time, or based on a point in time estimate.

Market modelling method

The market modelling method involves relying on a number of assumptions, such as those associated with forecast supply and demand. This means that, like the LRMC methods discussed above, the outcomes of the market modelling method are sensitive to the underlying assumptions. In particular, the outcomes of this method are largely dependent on how generator bidding behaviour is taken into account. Bidding behaviour under this method could be based on a variety of assumptions, specifically:

33 In the levelised unit electricity cost approach, it assumes that the change in demand will simply be met by a new generation plant.

- historical bidding patterns - which may not capture the impact of significant regulatory or policy changes, eg the carbon price; or
- an assessment of future bidding patterns - which may be subjective; or
- economic theory, such as game theory - which may be difficult for regulators to undertake and replicate in practice.

The application of a hedging strategy under a market modelling method also depends on the bidding assumptions and the underlying load profile.

Futures and/or forward contracts approach

Using a futures/forward contract approach avoids the need to make underlying assumptions, such as about expected bidding behaviours. Forward contract prices from the market will generally produce the best estimate of future electricity costs.

Forward prices obtained from publicly available sources are likely to be more transparent than modelled prices. Publicly available prices represent the views of market participants, so may be more likely to reflect the particular circumstances in the market.

However, the accuracy of this data depends largely on the liquidity of the forward contract and/or futures market. There may be limited publicly available information regarding contract prices and volumes of trade: reflecting limited liquidity in the contract market. Further, as the time horizon increases there will be less information available as liquidity in these markets decreases further into the future.

The liquidity in futures and forward contract markets is also affected by the level of vertical integration in the market. Vertical integration refers to when retailers also own generation assets. Increased levels of vertical integration will generally result in less liquidity in futures and forward contract markets as vertically integrated businesses have a lower reliance on these markets to hedge against their risks in the spot market. This is because these businesses can manage risks internally through balancing their generation and retail portfolios.

Further, forward contracts and/or futures data will represent an "average" of hedging strategies across the NEM. It does not necessarily reflect the strategies adopted by individual retailers, who are seeking to hedge against their specific load profiles or circumstances. The AEMC understands that as a tailored approach to hedging is adopted by most retailers, a system-wide contract price approach, which reflects all load profiles, may not adequately represent the strategies of individual retailers. Therefore, if a cost allowance is based on this "average" approach, it may allow retailers to either under- or over-recover costs depending on their individual hedging strategies.

Current jurisdictional approaches

Jurisdictional regulators, as guided by their terms of reference, typically adopt a mix of LRMC and market based methods.

In NSW, IPART is required under its current terms of reference to calculate a price floor comprising an average of 75 per cent LRMC and 25 per cent market based energy purchase costs. IPART uses a greenfields LRMC method to calculate the LRMC component. For the market based component, IPART uses future contract prices. IPART also includes a volatility allowance, which aims to compensate retailers for the additional costs associated with the volatile nature of the load that retailers serve and the wholesale electricity prices that they face.

In ACT, the Independent Competition and Regulatory Commission (ICRC) adopts an approach based on the costs of purchasing electricity futures contracts.

In Queensland, the Queensland Competition Authority (QCA) considers that a market based approach based on futures data is the most appropriate method, since this provides the best estimate of the costs that retailers will incur in the year ahead. The QCA also includes an explicit prudential capital allowance, given that the method is based on futures data. This covers the additional bank guarantees that a retailer would have to purchase if it hedged using futures.

In Tasmania, the Office of the Tasmanian Economic Regulator (OTTER) currently sets the wholesale energy cost based on the greenfields LRMC of a notional new generator (assumed to be a combined and open fired gas fired plant) supplying electricity to small customers in Tasmania.

The method that is used to calculate the wholesale energy cost allowance in Tasmania is expected to change in the future, following a number of reforms that are being made to the Tasmanian electricity industry. The *Electricity Reform (Implementation) Act 2013* includes some principles to guide the approach that OTTER must use to determine the regulated retail price for small customers. The Bill states that the wholesale electricity cost component of the regulated price will be based on Hydro Tasmania's regulated contract prices, as set by the regulator. The current position by the Tasmanian government is that this will include a load-following swap product shaped to the Tasmanian net system load profile.[34]

Prior to deregulation in South Australia, the Essential Services Commission of South Australia (ESCOSA) used a greenfields LRMC approach, since it did not consider the futures market was sufficiently liquid. However, in October 2012, ESCOSA published a draft determination outlining a proposal to recalculate wholesale energy costs using a forward contract data approach. However, this approach was not pursued as the South Australian government announced that retail price regulation would be removed from February 2013.

3.2.3 Issues for discussion

There are a number of considerations as to whether a LRMC, a market based, or combined approach is more appropriate.

34 Tasmanian Government, *Tasmanian Energy Reform: Market and Regulatory Framework - Position paper*, March 2013, p. 28.

LRMC is a long run concept, which takes into account that generators may expand their capacity in order to meet changes in demand. In contrast, market modelling approaches seek to reflect the short term costs for retailers associated with purchasing electricity from generators. These differences have implications for the approach selected by regulators to estimate wholesale energy costs.

It is also important to consider the time period that is being considered as the "long term" versus the "short term", and how the relevant period is defined. For example, in estimating a LRMC, the long term costs could reflect the life of a generation plant or the length of a typical PPA. This can have implications on the estimates obtained under each of these methods. It can also influence what is the most appropriate method to use.

LRMC reflects the long term average price of electricity. In a growing market, the average market price should return to LRMC over time. Therefore, LRMC represents what a new entrant retailer would expect to pay for generation over the life of their investment. It also represents the costs to a retailer if it decides to build its own generation to service its load.

Market based approaches are an estimate of the actual costs faced by the retailer in the market in the short term.

The AEMC recognises that prevailing wholesale market spot prices will not always correspond with estimates of LRMC. LRMC is a long-term estimate of the competitive level of wholesale electricity prices. It is expected that actual prices will be above this level in some years, and below in other years. These variations reflect the supply and demand conditions at those particular points in time, ie the supply and demand balance.

For example, where there is currently excess capacity in the market (ie a larger generation capacity than that needed to supply the load), spot prices are likely to be lower than LRMC estimates. This is because the LRMC approach factors in how future demand may change, and whether new generation may be necessary over the long term. This would result in a higher LRMC estimate compared to spot prices as spot prices reflect short term changes in supply and demand. In contrast, if there is insufficient capacity in the market, then spot prices are likely to be higher than LRMC estimates.

The above example can represent the trade-off for regulators between achieving efficient short term prices, and supporting the interests of customers in the long term.

To the extent that LRMC estimates of wholesale energy costs are greater than those derived under a market modelling approach, this can be considered as a "margin" on top of the efficient short term costs of supply. This "margin" can be used to promote competition in the retail market. Issues around including an allowance to promote competition in the regulated price, and the linkages with the wholesale cost allowance, are discussed in more detail in section 5.3.

The AEMC notes that a combination of both the LRMC and market modelling approaches could potentially be used. For example, the two approaches could be combined together to provide a weighted average price. As discussed above, this is currently the method for setting the floor price in NSW. Alternatively, the approaches could be used as a "cross check" against each other.

Some regulators also include other costs in the wholesale cost allowance, reflecting the specific method that they have used to estimate energy purchase costs. For example, the QCA includes an allowance for prudential capital since it uses a forward contracts approach. However, it is important to ensure that retailers are not being allowed to recover these costs twice. Costs associated with the risks, and volatility in the wholesale market may also be recovered through the retail operating cost, or retail margin. This issue is discussed in more detail in section 5.2.

Further, a variety of scenarios may be included in estimating the wholesale cost allowance. These may include scenarios representing regulatory uncertainty, eg the outturn carbon price when the Australian market is linked with the European market. These could be used, together with associated probabilities, to gain a weighted average estimate of the market price. Alternatively, they could be used to create a range that the estimate of wholesale energy costs should sit within. Given that regulators either estimate wholesale energy costs annually, or update the inputs into this component annually, we invite views on whether including scenarios would decrease cost recovery risks for retailers, and what the appropriate scenarios should include.

Question 4 Wholesale energy costs

(a) As considered in our proposed objective, should the wholesale energy cost allowance aim to:

(i) recover the efficient costs retailers face at a particular point in time; or

(ii) have a more long-term focus in recovering costs?

(b) What is the appropriate method (or combination of methods) to estimate wholesale energy costs?

(i) Does the appropriate method differ depending on the state of competition in the market? For instance, should a different method be applied in jurisdictions that have limited competition in the wholesale market, such as Western Australia, Northern Territory or Tasmania?

(c) Are there are any other allowances or costs that should be included in the wholesale cost allowance? Eg, a volatility allowance or allowance for prudential capital?

(d) What sensitivities should surround the calculation of wholesale energy costs? Eg, in relation to estimating a carbon cost?

3.3 Market fees and ancillary service fees

NEM market and ancillary service fees comprise a very small component of wholesale energy costs – less than one per cent of a total retail electricity price.[35]

NEM market fees are charged to retailers to recover the costs of Australian Energy Market Operator (AEMO) operating the market. These are based on the budgeted revenue requirements of the AEMO, with these requirements being fairly stable across time. Therefore, the fees are relatively easy to predict, with regulators estimating these based on AEMO's recent budget documents.

Ancillary service charges relate to ancillary services purchased by AEMO to ensure that the power system remains in a secure state. These charges are more difficult to estimate than NEM market fees, since they depend on the costs of services sourced on a competitive basis. However, we understand that these charges are relatively constant over time. Jurisdictions typically base these costs on average, historical ancillary service costs in the NEM. An alternative is to escalate historic ancillary service costs in the NEM by the consumer price index.[36]

Question 5 Market fees and ancillary service fees

(a) What is the appropriate method to estimate NEM market fees?

(b) What is the appropriate method to estimate ancillary service fees?

3.4 Energy losses

Retailers charge customers based on the energy consumption recorded at the customer's meter, but must buy more than this to account for losses that occur when transporting energy to customers across the transmission and distribution networks. Generally jurisdictional regulators include an allowance for these costs in the regulated retail price.

Regulators simply apply an appropriate loss factor (in percentage terms) to the previous cost decisions on the energy purchase cost allowance, NEM fees, and jurisdictional energy cost allowances to determine a loss allowance in $/MWh. Regulators use the published loss factors for transmission and distribution, as approved by AEMO and the AER.

Question 6 Energy losses

Is using loss factors, as published by AEMO, the most appropriate method to estimate energy losses?

35 AEMC, *Electricity Price Trends Final Report: Possible future retail electricity price movements: 1 July 2012 to 30 June 2015*, 22 March 2013.

36 This is the approach adopted by the ICRC.

4 Network costs

This chapter sets out issues relating to the network cost component of the regulated retail electricity price.

4.1 Context

Network costs include the costs of transporting electricity from generators to customers along the electricity transmission and distribution networks. Retailers are charged for customers' use of the networks. Network costs are then recovered by retailers from all customers through retail electricity prices.

The revenues that regulated transmission and distribution businesses in the NEM are able to recover are set by the AER, in accordance with the requirements set out in the NEL and the NER.[37] Distribution network prices include costs associated with jurisdictional feed-in tariffs.

In the NEM, jurisdictional regulators do not have a formal role in setting the network cost component when setting regulated retail prices. As a result, regulators simply include the network prices that have been set by the distribution business[38] as part of the regulated retail price.

Usually, the AER sets network revenues over five year determination periods. The network businesses are then required to publish the prices they will use to recover this revenue each year. Distribution businesses are also required to seek approval of their annual prices from the AER.[39] Transmission businesses are required to have their pricing methodology approved by the AER, but are not required to seek approval of their annual prices.[40]

The structure of the prices charged by distribution and transmission businesses is generally preserved in regulated retail electricity prices, to avoid the risk of a mismatch in price structures and a resulting under or over recovery in revenue for retailers.

Consistent with the terms of reference, in considering the network cost component of regulated retail electricity prices, the Commission is focussing on how network prices should be passed through, rather than how they should be set. Changes to the way that network prices are set is outside the scope of this advice and are more appropriately considered through the Commission's rule change process for the NER.

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37 In Western Australia and the Northern Territory, jurisdictional regulators rather than the AER determines the revenues network businesses can recover through their prices.

38 Transmission charges are passed onto the distribution business who then charges retailers for use of both the transmission and distribution.

39 NER clause 6.18.2(a).

40 NER clause 6A.10.1(a).

4.2 Issues for discussion

There are two main issues for consideration in terms of how network prices are passed through to regulated retail electricity prices, which include:

- the timing of network price changes; and
- the pass through of time of use network prices.

4.2.1 Timing of network price changes

Under the current NER, transmission businesses are required to publish their prices for the next financial year by 15 May each year.[41] Distribution businesses are required to submit their prices to the AER for approval by 1 May each year and are then required to publish their prices, where practicable, by 1 June for commencement on 1 July.[42]

IPART has submitted a rule change proposal to the Commission to bring forward the timing for the publication of network prices and improve consultation around future distribution prices.[43] IPART has suggested that under the current timeframes for the publication of network prices, there is a limited amount of time for regulators and retailers to take into account the distribution prices that will apply for the next financial year. The Commission commenced this rule change proposal in early June 2013. As the Commission will be considering the timing of network price changes through a separate rule change process, it does not intend to further assess this issue as part of this advice.

4.2.2 The pass through of time of use network charges

The Commission has been requested to consider the pass through of time of use network charges to regulated retail electricity prices under the terms of reference for this advice.

In late 2012, the Commission published recommendations relating to time of use network prices as part of its final report on the Power of choice review.

To ensure that the community's demand for electricity services is met by the lowest cost combination of supply and demand options, the Commission recommended the gradual phase in of efficient and flexible retail pricing options for residential and small

41 NER clause 6A.24.2(b).

42 NER clauses 6.18.2(a)(2) and 6.18.9(b). In Victoria, distribution prices are set on a calendar year basis and must be submitted to the AER two months prior to commencement and then published 20 business days prior to commencement. Alternative arrangements apply for the publication of distribution prices in the first year of the determination period, as the AER's determination is only published two months prior to the beginning of the first financial year of the period.

43 IPART, 2012, *Proposed changes to annual network price setting arrangements in Chapters 6 and 6A of the National Electricity Rules*, rule change proposal.

business customers through the introduction of cost reflective distribution network pricing structures.[44]

Under this recommendation, small customers would be able to remain on existing network tariffs, but have the option of moving to a flexible time of use network tariff.[45] This would require jurisdictional regulators to set both flat and flexible regulated retail electricity prices, where retail price regulation remains.[46]

SCER has agreed in principle with these recommendations and considers that time of use network pricing should be progressed and be available by no later than July 2014, where possible.[47,48] SCER intends to submit a rule change proposal to the AEMC to implement this recommendation.[49]

Time of use network pricing is possible under retail price regulation, but it may affect the form of regulation which is used to regulate prices. This is because as time of use network prices are phased in and customers adjust their consumption to changes in prices, there is the potential that the load profile[50] of customers may change. This is likely to increase the complexity for regulators and retailers in making assumptions about how customers will consume electricity, which is required in developing the structure of regulated retail electricity prices. Increased complexity in this task could create a risk of under or over recovery in revenue for retailers.

The AEMC notes that load profile assumptions currently need to be made in setting flat regulated retail electricity prices, in particular in relation to the wholesale energy cost component. However this task could become more difficult with the widespread introduction of time of use network pricing.

The risks associated with passing through time of use network prices to regulated retail electricity prices are likely to reduce with time as regulators and retailers improve their understanding of how customers are likely to respond to price signals.

An alternative option to manage changes in the load profile could be for regulators to reset regulated retail prices more frequently. The Commission notes that the QCA does currently set individual time of use prices for residential customers in Energex's network. Further discussion on issues relating to the form of regulation for regulated retail electricity prices is set out in chapter 7.

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44 AEMC *Power of choice review - giving consumers options in the way they use electricity*, Final Report, 30 November 2012, p. 170.

45 The AEMC recommended that medium sized customers should be able to "opt out" of time of use network prices and that large customers should be required to move to time of use network prices.

46 AEMC *Power of choice review - giving consumers options in the way they use electricity*, Final Report, 30 November 2012, pp. 178- 179.

47 SCER, *SCER response to the Power of choice review*, March 2013, pp. 7-8.

48 The SCER response to the Power of choice review notes that Queensland reserves its right to support (or not) the implementation of this recommendation following further investigation by the AEMC, and following the conclusion of the state's own investigations into pricing.

49 SCER, *SCER response to the Power of choice review*, March 2013, pp. 7-8.

50 A load profile represents the electricity demand across time.

Question 7 Network costs

What issues should regulators take into account in passing through time of use network prices in setting regulated retail electricity prices?

5 Retail operating costs and retail margin

Jurisdictional regulators set two cost components relating to retail costs in setting regulated retail prices:

- retail operating costs, which covers the costs that a retailer incurs in running its business; and
- the retail margin, which compensates a retailer for its investment in the business and the risk it assumes in providing retail services.

Section 5.1 discusses the retail operating cost component, while section 5.2 discusses the retail margin cost component.

In some jurisdictions where small customers are able to choose their retailer, an allowance for customer acquisition and retention is also provided as part of the retail operating costs in order to encourage competition. This, and other methods available to regulators to encourage competition, are discussed in section 5.3.

5.1 Retail operating costs

5.1.1 Context

The retail operating cost component of the regulated retail electricity price is set to allow retailers to recover efficient costs including: customer service costs (eg billing systems; call centres); IT costs; corporate overheads; and regulatory costs associated with providing regulated retail electricity prices.

5.1.2 Methodologies

There are a number of issues for regulators to resolve when setting a retail operating cost allowance. This includes: determining a "standard retailer" on which to base the retail operating cost allowance on; and determining the efficient level of the cost allowance and how to escalate costs over the determination period.

Determining a “standard retailer”

Jurisdictional regulators make assumptions about a “standard retailer” in determining the appropriate level of retail operating costs.

In NSW and Queensland, the standard retailer is assumed to be a large retailer that: has achieved economies of scale; has customers in multiple NEM jurisdictions; and can offer customers both market and regulated retail electricity prices.[51] A similar

51 See: IPART, *Review of regulated retail prices for electricity, 2013 to 2016: Electricity - Draft Report*, April 2013, pp. 86-87; QCA, *Final determination: Regulated retail electricity prices 2013-14*, May 2013, p. 45.

definition of the standard retailer was also used in South Australia, prior to the removal of retail price regulation.

In Tasmania and the ACT, the standard retailer is assumed to be the incumbent retailer in those jurisdictions.[52]

Determining the efficient level of retail operating costs and escalating costs

Once the "standard retailer" has been defined, there are two main methodologies used by jurisdictional regulators in setting an efficient retail operating cost component:

- a bottom-up approach, which involves requesting retailers to provide information on each component of their operating costs; and
- a benchmarking approach, which involves examining publicly available information on retail operating costs from publicly listed companies and/or other regulatory decisions.

Most regulators use a combination of the bottom-up approach and the benchmarking approach in setting the retail operating cost component, with benchmarking generally used as a check against the bottom up information they have received from retailers.

In determining the efficient level of retail operating cost allowance, regulators generally take into account:

- the degree to which there may be common operating costs between regulated and market customers, and other business units that a retailer may own (eg gas retailing services, generation businesses etc);
- the potential for new operating costs to emerge over the determination period;
- how operating costs should be escalated over the determination period, and the potential for any innovation or productivity improvements; and
- the comparable scale and scope of relevant retailers in their jurisdiction to retailers in other jurisdictions when considering benchmarking information.

5.1.3 Issues for discussion

Defining a "standard retailer"

In defining the standard retailer, regulators must decide whether the standard retailer is based solely on an incumbent retailer, or an incumbent retailer which is subject to retail competition, as this affects the level and type of costs which are included in the

52 See: ICRC, *Final report: Retail prices for franchise electricity customers 2012-14*, June 2012, p. 27; and OTTER, *Investigation of maximum prices for declared retail electrical services on mainland Tasmania: Final report*, October 2010, pp. 54-55.

retail operating cost allowance. The level of retail operating costs is also affected by a regulator's decision on whether the standard retailer is a standalone retailer or operates across multiple jurisdictions.

As the definition of a "standard retailer" reflects a regulator's views on the average retailer operating in their jurisdiction, how a standard retailer is defined is likely to vary in each jurisdiction, depending on the level of competition and market structure that is in place.

In jurisdictions with full retail contestability there remains a question as to whether retail operating costs should take into account new entrant costs to assist in facilitating retail competition.[53]

If retail operating costs do not take into account new entrant costs there is a risk that this could create a barrier to entry as initially new entrant retailers are likely to have higher costs than an incumbent retailer. This is because new entrants face the cost of acquiring new customers and initial start-up capital costs. They are also likely to have a relatively small customer base from which to recover their initial start up costs from. Therefore, new entrants may not be able to effectively compete against the regulated retail electricity price, where retail operating costs are based solely on the incumbent retailer.

This issue represents a tension that may exist in retail price regulation between the objectives of setting a retail electricity price which pursues short term low prices for customers and, where this may be feasible, facilitating competition in the longer term.

Regulators typically address this issue by setting retail operating costs on the basis of a large retailer, which is assumed to operate across multiple jurisdictions. As a result, the standard retailer is assumed to have efficient costs through achieving economies of scale. Regulators also typically provide a customer acquisition and retention cost allowance to take into account the costs of participating in a competitive market, with this discussed in more detail in section 5.3 below.

Determining the efficient level of retail operating costs and escalating costs

Once the regulator has determined the basis for retail operating costs, there are also several other issues to consider. These relate to how the efficient level of retail operating costs is determined and how costs are escalated over the determination period.

In relation to determining the efficient level of retail operating costs, assessing a retailer's proposed operating costs using a bottom up approach can be difficult for regulators in practice due to the information asymmetries that exist between regulators and retailers. This can in part be addressed by benchmarking.

53 In jurisdictions without full retail contestability, the consideration of the costs of a new entrant retailer is not appropriate.

However, the use of benchmarking to set an efficient allowance can also be difficult due to a lack of rigorously tested and detailed publicly available information. For some jurisdictions which have particular market characteristics, such as a small customer base and limited retail competition, it may also be difficult for regulators to find an appropriate benchmark to use. The use of other regulators' retail operating cost allowances in benchmarking over the longer term may also lead to a risk of circularity in setting the retail operating cost allowance, if the allowance is set purely by reference to other regulatory decisions.

As a result, there is a question as to what sources of reliable information that a regulator can practically use in assessing the efficient level of retail operating costs under both bottom up and benchmark approaches.

In considering how retail operating costs should be escalated, regulators often take into account the possibility of changes in the nature of operating costs, which may lead to new costs or the reduction or removal of historic costs. This may lead to a one off step change in retail operating costs at times.

After taking into account any required step changes in retail operating costs, regulators are then required to determine how the retail operating cost allowance should be escalated over the determination period. In considering this, regulators could have regard to three possible factors: a general cost escalator, such as the consumer price index; a specific cost index which is more targeted to electricity retail operating costs; and the potential for productivity improvements to arise over the determination period.

Due to the difficulties of developing a specific cost index for electricity retail operating costs, regulators generally prefer to escalate retail operating costs by the consumer price index.

In considering the potential for productivity improvements, regulators could take into account historic productivity improvements experienced by other industries, but this would require comparison industries to be sufficiently similar in nature to electricity retailing to ensure comparisons were valid.

Another option regulators could consider is to provide for no escalation in costs, beyond any new costs that may arise. This approach could be used to incentivise efficiency improvements.

However, in practice due to the difficulties of accurately estimating the potential for productivity improvements, regulators commonly do not include a specific productivity incentive in setting the retail operating cost allowance. Rather, some regulators consider that by escalating retail operating costs by the consumer price index that this may provide retailers with an incentive for productivity improvements where their costs rise by more than inflation. There remains a question as to whether there are any other practical alternatives to considering potential productivity improvements that could be used by regulators.

Over time as competition develops, regulators may obtain a better understanding of the efficient level of retail operating costs and the potential for productivity improvements as potential efficiencies may be revealed, in part, through the level of discounting that occurs on market prices relative to the regulated retail electricity price. However, untangling the extent to which discounting reflects efficiencies in retail operating costs, as opposed to other factors, is likely to be difficult.

Question 8 Retail operating costs

(a) What method should be used to estimate retail operating costs? Ie, should a "standard retailer" be used?

(b) If a "standard retailer" is used, how should the "standard retailer" be defined and what issues should be taken into account in defining a "standard retailer"?

(i) Are there any considerations specific to Northern Territory and Western Australia that should be taken into account when defining a "standard retailer"?

(c) Should benchmarking be used in determining the efficient level of retail operating costs? How could benchmarking be improved?

(d) How should retail operating costs be escalated over a determination period and how should the potential for productivity improvements be considered?

5.2 Retail margins

5.2.1 Context

The retail margin represents the return that a retailer requires to attract sufficient capital in order to finance the ongoing operation of its business. This includes compensation for both the capital associated with the business, and the risks associated with the investment. Retail margins are generally set on a pre-tax basis.

The retail margin aims to compensate the retailer for *systematic* or non-diversifiable risks associated with supplying electricity. Systematic risk involves risk associated with variables where there is a direct relationship between the relevant variable and general economic conditions. For example, a systemic risk would include changes in demand related to an economy-wide recession.

A retail margin does not seek to compensate retailers for *non-systematic* or diversifiable risks. These are risks specific to a particular retailer, and are not related to broader market movements. For example, this may include uncertainty associated with the introduction of a new environmental scheme in a particular jurisdiction. These risks are not addressed through a retail margin, but through other uncertainty mechanisms that are discussed in more detail in section 7.2.

The jurisdictional regulator aims to ensure that a retailer receives a retail margin which reflects efficient financing costs, while also minimising the cost to the customer. The retail margin is set by reference to a notional or actual retailer operating in a competitive environment.

One difficulty when setting regulated retail tariffs is ensuring that risks compensated through the margin are not double counted or provided for in other cost components. Regulators seek to omit risks that are compensated through other mechanisms. For example, section 3.2 discussed the risks associated with estimating future energy prices and the implications for the wholesale energy cost allowance. These risks will be reflected in the wholesale energy cost allowance and so should not be included in the retail margin.

5.2.2 Methodologies

There are three methods typically used to estimate the retail margin:

- expected returns;
- bottom-up; and
- benchmarking.

In theory, these three approaches should all give similar results.

Expected returns

The expected returns approach estimates the expected cash flows for a retailer and the systematic risk associated with these flows. It then determines a margin that compensates investors for this risk.

This approach is dependent on the economic theory of the Capital Asset Pricing Model, which determines a theoretically appropriate required rate of return of an asset taking into account:[54]

- the expected return of a theoretical risk-free asset;
- the asset's sensitivities to systematic risk; and
- the expected return of the market.

This approach is heavily reliant on the underlying financial theory and the parameter inputs for the analysis. It does not include considerations of actual market outcomes. However, it can produce a precise estimate of the margin.

54 This approach assumes that investors can eliminate exposure to non-systematic risks through diversifying.

Bottom-up

The bottom-up approach first estimates a retailer's asset base and its estimated cost of capital. It then determines the earnings and revenue, which would allow the retailer to earn an expected return equal to its estimated cost of capital. This relies on market-based evidence to estimate an asset base, and then theoretical analysis (such as the application of a weighted average cost of capital calculation) to estimate an appropriate return on that asset base.

The bottom-up approach can be considered analogous to the regulated rate of return or "return on" component used in the regulation of network businesses.[55]

A bottom-up approach does require an assumption about the value of the retailer's assets, which may be difficult to obtain. Retail businesses typically have small tangible asset bases, compared to network businesses. Much of the value lies in its intangible assets, which are largely represented by the value of its customer base.

The advantage of this approach is it is can be considered easy to replicate and it is transparent since the derivation of the margin can be easily seen.

Benchmarking

The benchmarking approach examines the reported margins of comparable listed firms by observing public data from stock exchange disclosures. The underlying assumption associated with using the reported margins of comparable firms is that the retail margin for a retailer will be broadly consistent with that for the businesses used in the benchmarking assessment. An alternative is to examine other retail margin regulatory decisions in order to use these as a comparison.

There is some circularity in adopting a benchmarking approach, in that *current* retail margins are examined in order to determine *future* retail margins.

There may also be limited observations available to draw inference from. For example, for a vertically integrated business the comparable business should be a listed vertically integrated business.

Current jurisdictional approaches

Most jurisdictions adopt a combination of these approaches to determine their retail margin. NSW averages estimates using all three approaches. Tasmania undertakes both benchmarking and an expected return analysis; while South Australia undertook both benchmarking and bottom-up analysis. Queensland uses benchmarking. ACT considers it is appropriate to apply the appropriate retail margin as determined by IPART.

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55 For regulated network businesses in the NEM, the AER applies a rate of return to the estimated value of the network business' assets in order to determine the return on capital allowance to be included in the revenue that the business is allowed to recover.

5.2.3 Issues for discussion

There are a number of considerations as to what is the most appropriate method for estimating the regulated retail margin. The level of the margin needs to be carefully considered since setting the margin too high can result in inefficient new entry into the market and customers paying too much, while setting it too low can discourage efficient entry.

When calculating a retail margin regulators typically aim to replicate profitability observed in a competitive market.

It is likely that a regulator can best estimate a retail margin at the time a particular retail price determination is made, if it is guided by a set of principles that are consistent over time. The principles should typically be consistent with achieving the overall objective for retail price regulation, and may require the regulator to take into account: the market circumstances; estimation methods; financial models; and other relevant information.

Another consideration is whether the retail margin should apply to all cost components. Network costs are typically directly passed through to retail prices, and so the recovery of these costs may not represent a significant risk to retailers.[56] The majority of jurisdictional regulators estimate the retail margin as a percentage of total costs. An alternative is to apply the retail margin to a retailer's controllable costs only, ie the wholesale energy and retail components.[57] However, this does not seem to affect the overall margin as we understand that this would likely result in a larger margin being applied over fewer costs.

The AEMC notes that retail operating costs and retail margins can be closely related. Sometimes the allocation of costs between these two components can be arbitrary – and may shift over time. For example, under the bottom up approach a retailer leasing IT equipment would increase its retail operating costs, which would have a corresponding decrease in the retail margin since the capital required would decrease.

Question 9 Retail margins

(a) What methodology should be used to calculate a retail margin? Ie, how should risks facing electricity retailers be compensated for?

(b) Should the retail margin be set as a fixed percentage of "total costs" (wholesale, network, retail) or of the controllable costs to the retailer (wholesale, retail)?

56 The AEMC understands that there may be a timing mismatch between when network costs are recovered from customers, and when a retailer must pay the network business. This will be managed by retailers through financing. However, it does create some risks for retailers. Further, to the extent that there is non-payment of bills, retailers will bear the full costs as they are still responsible for paying the networks.

57 Indeed, this was the approach adopted by ESCOSA in its most recent determination.

(c) To what extent should the relationship between the retail operating cost and the retail margin be taken into account?

5.3 Competition allowance

5.3.1 Context

As discussed in chapter 2, we consider that the objective for retail price regulation should include facilitating the development of competition in retail markets, where this is feasible. Competition provides a number of benefits for customers, including prices trending to efficient costs, and a choice of products and services consistent with customer preferences.

The overall regulated retail price level influences the development of the competitive market, since new entrant retailers essentially compete against this price. Market (or unregulated) prices offered by new retailers are generally at a discount to this regulated price, to enable retailers to gain customers and market share.

Therefore, for retail markets to develop, regulated prices must not create barriers to retailers efficiently entering the market and competing for customers, and enabling customers to seek out better offers in the market. Accordingly, some regulators include some form of "competition" allowance or "headroom" in the regulated retail price, to encourage new entry into the retail market.

5.3.2 Methodologies

There are a number of ways in which a competition allowance can be incorporated into the regulated retail price. This includes:

- as part of the wholesale cost allowance;
- a specific customer acquisition and retention cost allowance as part of the retail operating cost allowance;
- a headroom margin as part of the retail margin; or
- a combination of several of the above approaches.

To the extent that estimates of LRMC are greater than market based estimates in relation to the wholesale cost allowance, this may be considered a form of headroom. For example, IPART is required to set the wholesale cost allowance no lower than a floor price which is the average of 75 per cent of the LRMC of generation, and 25 per cent of the market based purchase cost. IPART considers that, since the market based cost reflects the short term efficient cost of purchasing electricity, the difference

between the floor price and the market based cost provides incentives for competition.[58]

Some regulators also set a specific allowance for customer acquisition and retention costs. This represents the costs to retailers of acquiring and retaining customers in a competitive market. A customer acquisition and retention cost allowance effectively seek to promote new entry by retailers by providing an allowance for their marketing costs.[59] In NSW and Queensland, an allowance for customer acquisition and retention costs is provided.[60]

However, since IPART considers that the wholesale cost allowance provides some form of headroom, it has taken this into account when setting its customer acquisition and retention cost allowance in order to ensure there is no double counting.[61] IPART also considered the extent to which other non-price mechanisms can promote competition.[62]

The QCA has estimated customer acquisition and retention costs by escalating the QCA's 2007-08 estimate of these costs over time.[63] The historic estimate of these costs was based on an estimate of the benchmark costs of a customer switching retailers and a customer transferring to a market contract with its existing retailer. These costs were then escalated by the number of customers switching and transferring in a market to reach an estimate of the customer acquisition and retention cost allowance.[64]

In contrast, the ICRC has not set a customer acquisition and cost allowance, as it based the retail operating cost component on the incumbent retailer and was "unconvinced" that a customer acquisition and retention cost allowance would necessarily lead to an increase in competition.[65]

A separate headroom allowance could also be included as part of the retail margin - this is the approach which the QCA adopts.[66] QCA considers that not including this

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58 IPART, *Review of regulated retail prices for electricity 2013 to 2016 - Draft Report*, April 2013, p. 23.

59 This also recognises that incumbent retailers will incur costs in attempting to retain, and win back, customers.

60 In Tasmania small customers are currently unable to select their own retailer and market offers are not available. As a result, a customer acquisition and retention cost allowance is not provided.

61 IPART, *Review of regulated retail prices for electricity 2013 to 2016 - Draft Report*, April 2013, p. 23.

62 For example, a more light-handed form of regulation such as a weighted average price cap gives more flexibility to retailers, and so can also promote competition.

63 Prior to 2011-12, the QCA adjusted these costs using a 60/40 weighing of the change in the wage price index and consumer price index. However, since that time the QCA has escalated those costs based solely on the consumer price index. See: QCA, *Regulated Retail Electricity Prices 2012-13, Final Determination,* May 2012, p. 61.

64 QCA, *Final decision: Benchmark Retail Cost Index for Electricity: 2011-12*, May 2011, p. 32; QCA, *Final determination: Regulated Retail Electricity Prices: 2013-14*, May 2013, p. 48.

65 ICRC, *Final report: Retail prices for franchise electricity customers 2012-14*, June 2012, p. 27.

66 Further, we note that in 2012 ESCOSA made a draft determination to include an explicit allowance for headroom. However, this draft determination was not implemented since the South Australia government announced it would deregulate retail electricity prices.

component may result in a reduction in market activities and the range of offers available to customers.[67] In determining this headroom allowance, the QCA considered the current state of competition in the market through analysing factors such as: switching rates, the number of active retailers and degree of market concentration, available market offers, and customer participation and engagement. It is applied as a fixed percentage of the total value of all cost components.

5.3.3 Issues for discussion

If jurisdictions are trying to encourage competition, then it may be appropriate for a specific allowance for competition to be included. Therefore, the decision on whether to include a competition allowance should include consideration of the current and potential future state of competition and the market structures that are in place.

If a competition allowance is provided for in the regulated retail electricity price, the next issue to consider is whether the competition allowance should be included as part of: the wholesale energy cost allowance; as a customer acquisition and retention cost allowance; as part of the retail margin; or across a combination of cost components. In practice, since potential new entrant retailers will consider the total regulated retail price in their decisions to enter, there may not a difference to retailers as to how this competition allowance is included.

However, the decision on how the competition allowance is included in the regulated retail price may affect the level it is set at. For example, where the competition allowance is set as part of the wholesale energy cost allowance, it may be set in relation to the comparative costs of estimating wholesale energy costs under alternative methodologies. In contrast, where it is included as part of the retail operating costs, the competition allowance may be set in relation to a retailer's sales and marketing costs.

If a decision is made to include a competition allowance, it may best be included in a transparent manner. Transparency regarding this allowance will provide information to new entrant retailers on the potential costs of acquiring and retaining customers. This may facilitate retail competition by assisting retailers to make their decision on whether to enter the market. Transparency regarding the level and purpose of a competition allowance is also important to ensure customers understand the objectives of retail price regulation and the longer term benefits that facilitating competition may have for customers.

Question 10 Competition allowance

(a) Should some form of competition allowance be included in the regulated retail electricity price to encourage competition?

(b) How should this competition allowance be included in the regulated retail electricity price and how should it be estimated?

67 QCA, *Final determination: Regulated Retail Electricity Prices: 2013-14*, May 2013, p. 57.

6 Environmental and jurisdictional schemes

Retailers also incur costs associated with complying with environmental schemes and jurisdictional schemes. This chapter discusses these cost components.

These compliance costs are in turn passed through to customers through retail electricity prices. Therefore, jurisdictional regulators need to estimate a retailer's cost of complying with these schemes in setting regulated retail electricity prices.

Section 6.1 discusses costs associated with the enhanced Renewable Energy Target, while section 6.2 discusses costs associated with jurisdictional energy schemes.

6.1 Enhanced Renewable Energy Target costs

The Renewable Energy Target (RET) scheme was established by the Commonwealth Government to encourage additional renewable energy generation.[68] On 1 January 2011 the RET was separated into two parts: the Large Scale Renewable Energy Target (LRET, discussed in section 6.1.1); and the Small Scale Renewable Energy Scheme (SRES, discussed in section 6.1.2).

6.1.1 Large-scale Renewable Energy Target

Context

Under the LRET, wholesale purchasers of electricity, primarily retailers, have a legal obligation to obtain and surrender a set number of certificates from renewable energy generators[69] each year.[70] The renewable power percentage[71] is used by retailers (and other liable entities) to determine their annual liability in terms of the number of Large-scale Generation Certificates (LGCs).

The cost to retailers of complying with this scheme is based on the market price which is determined by the supply of, and demand for, certificates. Historically the certificate price has varied between $10 and $60.[72] Alternatively, if retailers do not surrender their required number of certificates in a year (ie do not comply) then they are required to pay a shortfall or penalty charge - currently set at $65 per certificate not surrendered.[73]

68 See: http://www.climatechange.gov.au/government/initiatives/renewable-target.aspx.

69 Such as wind, solar and hydro-electric power stations.

70 Alternatively, purchasers can pay the penalties for non-compliance.

71 See: *Renewable Energy (Electricity) Regulations 2001.*

72 Clean Energy Regulator, *About the Renewable Energy Target,* April 2012.

73 These penalties are generally not deductable for tax purposes making the effective cost to companies higher.

Methodologies

Retailers' liabilities under the LRET are determined on a price per MWh basis by multiplying the:

- renewable power percentage, which determines the number of certificates that retailers are required to purchase; and
- price for LGCs.

The renewable power percentage is set in the relevant regulations, and published by the Clean Energy Regulator. Jurisdictional regulators, reflecting the basis on which the cost is incurred, apply the renewable power percentage when estimating the size of a retailer's liabilities.

There are a number of different methods that regulators can use to estimate the price for LGCs, specifically:

- historical market prices;
- futures market prices; or
- an estimate of the long run marginal cost for renewable generators, which estimates the marginal cost of meeting an incremental increase in the LRET target in a given year; or
- the LGC penalty price.

Issues for discussion

The main policy issue for regulators is in deciding which "price" to use in estimating a retailer's cost of complying with the LRET, with this affecting the value of a retailer's expected liabilities.

Historic market data

One approach is to use historical prices as an estimate of the future price. The use of historic data relies on the assumption that the price for certificates in the past is likely to be similar over the determination period to the historical period that data is sourced from.

However, market data may not be cost reflective since the AEMC understands that some retailers obtain LRET certificates by directly entering into power purchase agreements with renewable generators. This approach means that the certificates are never traded in the market – and so not reflected in the pricing data.

The use of actual market data as a suitable estimate therefore depends on a number of factors, including the liquidity in the market for LGCs and the level of demand and supply in the market.

Futures market data

An alternative is to use forward prices or futures data as an estimate for the price. The usefulness of this approach also relies on the current liquidity of the market. If current market liquidity is low, futures market data may not be an accurate estimate of future prices.[74]

Long Run Marginal Cost

The third approach estimates the LRMC of renewable generation to meet the LRET by calculating the marginal cost of meeting an incremental increase in the LRET target in a given year. This approach takes into account the interactions between the energy market (expressed as the wholesale spot price) and the LGC market (expressed as the LGC certificate price).

This may result in a LGC price estimate, which is different to the market price. The differences exist for similar reasons as to why differences between LRMC and market based estimates of wholesale energy costs exist, eg the short-term demand and supply balance.[75]

One advantage of this method is it can be used where there is insufficient liquidity in the current market. This method also reflects the circumstances where some retailers enter into power purchase agreements or contract directly with renewable generators, as described above.

Penalty Price

An alternative could be to apply the penalty or shortfall price. While the penalty price is certain, it would provide retailers with more revenue than they require.

No jurisdictional regulator currently adopts this approach.

Question 11 Large-scale renewable energy target costs

Which methodology is more efficient in terms of estimating the "price" of the compliance costs of the LRET - historic market prices, futures market prices, LRMC or the penalty price?

74 Some jurisdictional regulators (eg IPART and the ICRC) have also provided a specific holding allowance where a futures market based price has been used to take into account the cost of retailers holding certificates in the period prior to their surrender.

75 See section 3.2 for more detailed discussion of why these differences exist.

6.1.2 Small Scale Renewable Energy Scheme

Context

The aim of the SRES is to provide incentives for households and small business to install small scale renewable energy systems through providing certificates for eligible installations. The certificates are called Small-Scale Technology Certificates (STCs). Similar to the LRET, retailers have a legal obligation to purchase a set amount of STCs each year, with this forming part of a retailer's cost of compliance with the RET.[76]

Methodologies

Retailer's liabilities under the SRES are determined in a similar manner as under the LRET, and are based on the Small Scale Technology Percentage (STP), and the price of STCs.

The STP is set annually by the Clean Energy Regulator on a calendar year basis to align with the expected rate of STC creation. This is applied by the jurisdictional regulator in determining a retailer's liability under the SRES.

Similar methods to those used for LRET exist for calculating the STC price:[77]

- historical market prices;
- futures market prices; and
- the clearing house price - which can be considered akin to the LRET penalty price.

Retailers can either purchase STCs through the Clean Energy Regulator's clearing house, or on the open market. The clearing house price is a fixed price at which STCs can be traded, and is currently set at $40 per certificate.

Jurisdictional regulators have tended to use estimates of market prices, rather than the clearing house price, as they consider there is sufficient liquidity in the market for STCs.[78]

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76 Sections 31 to 34 of the *Renewable Energy Electricity Act 2000* set out how "relevant acquisitions" of wholesale electricity are defined.

77 We have not considered LRMC as a potential method to estimate the price. The AEMC considers there would be a number of difficulties in applying this approach. For example, the price for STCs also depends on other jurisdictional schemes related to small-scale renewables, such as feed in tariffs, which would be difficult to reflect in the modelling.

78 For example, in recent electricity price determinations by IPART and the QCA, estimates of market prices have been used rather than the clearing house price to estimate SRES compliance costs.

Issues for discussion

There are two main policy issues for regulators in determining SRES compliance costs:

- the timing difference between when the STP is set by the Clean Energy Regulator and when jurisdictional regulators are required to set regulated retail electricity prices, which creates cost recovery risks for retailers; and

- whether market prices or the Clean Energy Regulator's clearing house price should be used in estimating the cost of complying with the SRES.

Timing difference between when the STP is set and the making of retail electricity price determinations

As noted above, the STP is determined on a calendar year basis by the Clean Energy Regulator, while regulated retail prices are set on a financial year basis. This requires jurisdictional regulators to estimate the STP for the last six months of the financial year, from the beginning of January to the end of June, as well as in the future years of the determination period. This consequently leads to a risk of over or underestimating the STP.[79]

The Clean Energy Regulator also publishes estimates of future STPs, but these estimates are non-binding and are subject to change if more or less STCs are created than expected. For example, in 2011, the non-binding estimate for the 2012 STP was 16.75 per cent, but the binding estimate in 2012 was set at 23.96 per cent, which reflects the higher than expected level of renewable installations affecting the SRES.[80]

If the STP is overestimated by jurisdictional regulators, retailers will have been allowed to recover more revenue than necessary. If the STP is underestimated, which has been more common in recent years, retailers will not be able to recover their costs of compliance through the regulated retail electricity price.

The risks associated with forecasting the STP for jurisdictional regulators are high as the future take up of small scale renewables is difficult to forecast.

However, recent instability in the STP is expected to reduce over the next few years, following changes to SRES policy settings and the closure and restructure of a number of jurisdictional feed-in tariff schemes which have reduced incentives for installations. This has led to a sharp decline in the STP as all STCs that an installation is deemed to produce over its lifetime are created in the year that an installation is registered with

79 The LRET obligations are also set by reference to calendar years. However, there is no timing mismatch as described here for the SRES scheme. This is because the LRET obligations are set in regulations, and so are anticipated.

80 See: Clean Energy Regulator, Small-scale technology percentage, available at http://ret.cleanenergyregulator.gov.au/For-Industry/Liable-Entities/Small-scale-Technology-Percentage/stp, accessed on 15 May 2013.

the Clean Energy Regulator.[81] As a result, a decline in the number of installations has a significant impact on the number of STCs which are created in each year, and in turn, the STP for that year.

To address the risk of under or over estimating the STP, regulators generally reassess SRES costs during annual reviews where determinations last longer than a year. Retailers could also seek a re-opening of the determination through a pass through mechanism, where such a mechanism has been provided for by the regulator. Further discussion on annual reviews and pass through mechanisms is set out in chapter 7.

However, even with these arrangements in place, retailers may still be required to bear some cost recovery risk due to the timing difference between when they are required to purchase STCs to meet their liabilities and when regulators undertake annual reviews or re-open their determinations.

Use of the Clean Energy Regulator's clearing house price or market prices in estimating SRES compliance costs

The second issue for jurisdictional regulators in determining SRES compliance costs relates to the methodology chosen by regulators in estimating the STC price. Similar arguments to those outlined above for using historic or future market prices apply.

Further, while the Clean Energy Regulator's clearing house price is certain, it could provide retailers with more revenue than they require where retailers purchase their STCs from the market.

As discussed above in relation to the STP, issues around differences between estimated and actual STC prices may be addressed by regulators reassessing SRES compliance costs through annual reviews and pass through mechanisms. However, similarly to the STP, retailers may still be required to bear some cost recovery risks.

Question 12 Small scale renewable energy scheme costs

(a) How should the issue of the timing difference between when the STP is set under the SRES (by calendar year), and when regulated retail prices are set (by financial year) be addressed?

(b) Which methodology is more efficient in terms of calculating retailers' compliance costs of the SRES - the clearing house approach or a market based approach?

(c) If a market based approach is used, what methodology should be used in forecasting future STC market prices?

81 For example, while the STP for 2012 was set at 23.96 per cent, the estimated STP for 2014 has been set at 8.98 per cent.

6.2 Jurisdictional energy scheme costs

6.2.1 Context

Some jurisdictions have developed their own individual environmental schemes, which seek to either minimise carbon emissions and/or promote energy efficiency. These jurisdictional schemes impose compliance costs on retailers, which are passed through to customers. As a result, jurisdictional regulators need to estimate the cost impact of these schemes in setting the regulated retail electricity price.

Current schemes in place in jurisdictions which retain retail price regulation include:

- **NSW Energy Savings Scheme**: This scheme seeks to reduce electricity consumption through energy efficiency activities. Certificates are created for each tonne of carbon emissions which is avoided. Retailers are required to purchase or create a defined number of certificates each year, in proportion to their electricity sales. A penalty price applies if sufficient certificates are not obtained.

- **ACT Energy Efficiency Improvement Scheme**: This scheme seeks to reduce carbon emissions through energy efficiency activities. Retailers have an obligation to meet annual targets for energy reductions, which are determined in proportion to their electricity sales. Targets can be met by undertaking eligible activities (eg installing high efficiency lights) or paying an energy savings contribution.

- **The Queensland Gas Scheme**: This scheme requires retailers to source 15 per cent of their electricity from gas fired generation to boost the state's gas industry and reduce carbon emissions. Certificates are created for each MWh of electricity which is generated by eligible generators, which are then purchased by retailers to meet their liability. A penalty price applies if sufficient certificates are not obtained.

  This scheme is currently in place but will close on 31 December 2013 as the Queensland Government considers that it is likely to duplicate the Commonwealth Government's carbon pricing mechanism.[82]

Tasmania does not currently have any jurisdictional environmental schemes in place.

In addition to the jurisdictional environmental schemes discussed in this section, a number of jurisdictions also have feed-in tariff schemes.[83] Feed-in tariff schemes provide incentives for small customers to install solar PV systems by providing a

82 Queensland Government, Queensland Gas Scheme, available at http://www.business.qld.gov.au/industry/energy/gas/queensland-gas-scheme, accessed 21 May 2013.

83 While a number of the current jurisdictional feed-in-tariff schemes are now closed to new applicants, existing customers participating in the scheme will continue to receive payments until the end date for the relevant scheme.

payment for the electricity which is generated through these systems.[84] As discussed in chapter 4, the costs associated with feed-in tariff schemes are recovered through distribution network charges which are determined by the AER and passed directly through to customers by retailers. As a result, feed-in tariff schemes are not discussed further in this section.

Jurisdictional environmental schemes also operate in addition to the Commonwealth Government's enhanced RET. As discussed above, in section 6.1 the enhanced RET seeks to promote large and small scale renewable generation and also imposes compliance costs on retailers which are passed through to customers.

The Commonwealth Government's carbon pricing mechanism also seeks to reduce carbon emissions. The cost of complying with this mechanism is recovered through the wholesale electricity cost component of retail electricity prices, which is discussed further in chapter 3.

6.2.2 Methodologies

The cost of compliance for jurisdictional environmental schemes is generally estimated by multiplying retailers' liabilities under the scheme by current market data on the price of certificates for certificate based schemes, or penalty fees.

IPART has indicated in its recent draft determination that the cost of the NSW Energy Savings Scheme will be estimated by using the penalty price for the scheme, as it considered that there is insufficient liquidity in the market to estimate the price of certificates.[85]

The cost of compliance under the Queensland Gas Scheme will be estimated by the QCA for 2013-14 by using market data to estimate the cost of certificates.[86]

In relation to the ACT's Energy Efficiency Improvement Scheme, the ICRC has used the energy savings contribution, which acts as an effective penalty price for the scheme, to estimate the cost of compliance.

In NSW and the ACT, which have retail price determinations lasting longer than a year, annual reviews are undertaken to reassess jurisdictional environmental scheme costs. Further discussion on annual reviews under retail price determinations is set out in chapter 7.

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84 Feed-in tariff schemes are either "gross" or "net" schemes. "Gross" schemes provide a payment for each unit of electricity which is generated, while "net" schemes only provide a payment for any unit of electricity which is exported to the grid in excess of an owner's usage.

85 IPART, *Review of regulated retail prices for electricity, 2013 to 2016: Electricity - Draft report*, April 2013, p. 74.

86 QCA, *Final Determination, Regulated Retail Electricity Prices 2013-14*, May 2013, p. 36.

6.2.3 Issues for discussion

As liabilities for jurisdictional environmental schemes are predetermined, the main issue for jurisdictional regulators relates to which methodology is the most efficient approach to take when estimating the cost of retailers' liabilities under the schemes.

A market based price may be generally preferable to a penalty based approach, as market prices are likely to more closely reflect retailers' costs of compliance. However, where there is insufficient liquidity in the market for certificates, market data may not be sufficiently robust enough for a regulator to base its cost estimates on this information. There is the potential that market liquidity may be limited since there are only a small number of certificates that can be traded at one time.

In this situation, an alternative may be to use the penalty price to estimate compliance costs. However, as the penalty price forms an effective cap on market based prices, there is a risk that this could overstate the costs of compliance.

An alternative approach could be to estimate the long run costs of complying with the scheme. For example, in relation to the Queensland Gas Scheme, the LRMC of gas generation could be used. In practice, such estimates are likely to be difficult for schemes like energy efficiency schemes, and as a result, may not be reflective of the actual costs faced by retailers under these schemes.

Question 13 Jurisdictional energy scheme costs

(a) What factors should be taken into account in estimating the cost of jurisdictional environmental schemes?

(b) Is a national approach to estimating these costs appropriate given the differences between jurisdictional environmental schemes?

7 Form and Timing of Price Controls

This chapter outlines issues relating to the methods for determining regulated prices. This includes the form of regulation, which relates to how regulated prices are set and adjusted over the determination period. This chapter also includes issues relating to the length of the determination period, including how unexpected changes in a retailer's costs are dealt with.

7.1 Form of regulation

7.1.1 Context

The form of regulation refers to the rules and methods that are used to set, monitor, and adjust regulated prices over the determination period. The form of regulation comprises both the methods for setting regulated prices (discussed below in section 7.1.2) and how regulated prices change over time (discussed below in section 7.1.3).

There are a number of considerations when deciding on the form of regulation that should apply to regulated retail prices, including:

- the incentives faced by a retailer under the form of regulation, including the extent to which this encourages efficient behaviour;
- the extent to which the form of regulation ensures that the prices customers face reflect the costs retailers face (ie cost reflectivity); and
- the implications that the form of regulation has for the risks that retailers and customers face.

These factors may also influence the level of competition in a market. Greater flexibility in how retailers can set prices may lead to better risk management for retailers. This in turn may lead to increased competition, since retailers can better manage costs and risks, and express this in prices. This may provide new entrant retailers with improved information on the costs and risks of operating in the relevant market.

7.1.2 Methodologies for determining regulated prices

There are two general methods used by regulators for determining regulated prices: a building block; or a cost index approach.

Building block approach

Under a building block approach, the regulator determines efficient cost components, such as those discussed in chapters 3 through 6. This is otherwise known as an N+R cost build up approach: network costs (or "N") are added to the retail costs (or "R"), which form the regulated price. The majority of regulators adopt this approach.

In the NEM the network costs are determined by the AER as discussed above in section 3.2. These costs are typically passed through to the regulated price. Retail costs comprise: wholesale energy cost allowance, retail operating costs, retail margins and any environmental or jurisdictional based schemes. In determining the costs that retailers recover, the jurisdictional regulator will aim to determine an allowance that reflects efficient costs.

This approach should promote cost reflective and cost efficient prices, since this is typically what the regulator may strive to achieve in the setting of the cost components.

The AEMC notes that this approach is similar to that which is applied to network electricity businesses by the AER.

Under a building block approach, prices can be adjusted over time by reference to either a revenue cap, a weighted average price cap, or by setting individual prices. These are discussed in more detail in section 7.1.3.

Index based approach

Under an index based approach, the regulator estimates the likely change in the costs of supplying electricity to customers. Existing prices are escalated by reference to an index, with the regulator determining movements in benchmark costs to calculate the annual adjustments.

The index represents the expected change in the underlying cost of supplying electricity to customers. In broad terms, the index for a particular year is calculated by dividing the total cost of supplying electricity in the year under review by the relevant load for the preceding year. The total cost of supplying electricity will include the various cost components, as discussed in the preceding chapters.

This estimated annual percentage change in the cost of supplying electricity is used to adjust the previous year's price. That is, a single escalation factor is calculated which is then applied to the total regulated price. For example, assume that there are only two cost components, of equal weighting. If one increased by 5 per cent, but one increased by 2 per cent, the index would increase by 3.5 per cent.

While the construction of an index involves the calculation of individual cost components, it is the relevant change in these cost components that matters for prices. The impact on prices will reflect both the size of the change in the cost component, as well as the weighting of the component in the overall index. For example, wholesale costs comprise around one third of a retail price.[87] Changes in this component therefore have a large influence on the index.

This method focuses on measuring *changes* in the costs of supplying electricity as opposed to the *actual* costs of supply. Even if prices are cost reflective to start with, it is

87 AEMC, *Electricity Price Trends Final Report Possible future retail electricity price movements: 1 July 2012 to 30 June 2015*, 22 March 2013.

unlikely that this would be maintained over time. Typically there are multiple regulated prices, that are adjusted by reference to one index. Unless prices increased uniformly for small residential customers, time of use customers, and commercial customers, price reflectivity would deteriorate.[88]

As a single index is used, unless the actual change in prices across all individual cost components is uniform, the cost reflectivity for individual cost components is likely to deteriorate. Continuing on the above example, applying a 3.5 per cent increase to a price will only be efficient if the cost components still have equal weighting.

Under an index based approach, prices can be adjusted over time by reference to either a revenue cap, a weighted average price cap, or by setting individual prices. These are discussed in more detail in section 7.1.3.

7.1.3 Methodologies for adjusting prices

There are three main methodologies for how regulated prices can change over time: a weighted average price cap (WAPC); a revenue cap; or the setting of individual prices.

Weighted average price cap

Under the WAPC approach the regulator sets the maximum average percentage by which each retailer can increase its average price, weighted by the relevant quantity, in each year of the determination period.[89] The retailer is free to rebalance and set prices within this weighted average (eg by increasing or decreasing some prices more than others) provided that the *cap* on the overall weighted average price is not breached.

The average percentage is calculated to allow retailers to recover the level of revenue a regulator considers the retailer should earn, which is calculated using the building block approach.

The weights applied to each individual price in the basket are typically set by reference to the actual quantities sold under each price in a previous year. This has implications for the incentives faced. Since weights are typically based on actual quantities sold previously, in the absence of competition, retailers have an incentive to set individual prices with regard to how fast or slow demand for each of the different prices is growing. For example, if a retailer knows demand for a particular price is growing, it has an incentive to increase the price charged for this in the current year as it can increase its revenue received given that its actual revenue will reflect the actual quantity sold at the higher price.

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88 Similar arguments apply to the changes in individual cost components. As a single index is used, then unless the actual change in prices across all individual cost components is uniform, the cost reflectivity for individual cost components is likely to deteriorate. Continuing on the above example, applying a 3.5 per cent increase to a price will only be efficient if the cost components still have equal weighting.

89 Separate baskets can also be set, based on different types of customer for example.

As competition develops a retailer's ability to lift prices above costs is reduced so prices evolve to reflect costs. This minimises revenue risk.[90] Aligning costs and revenue ensures that the retailer will be able to recover its costs, and enables retailers to better manage their risks.

Regulated price changes may also be subject to "side constraints". These are additional limits imposed on individual prices, to ensure that changes for any one particular customer segment are not too large in a given year.

A WAPC also minimises administrative costs for jurisdictional regulators, since the retailers themselves set individual prices, as opposed to the regulator. However, given that retailers themselves rebalance the prices a WAPC method may be considered to be less transparent in terms of how individual prices are determined.

Revenue cap

Under a revenue cap, there is a direct limit on the maximum allowed revenue (MAR) that a retailer can earn in any year. Revenue caps are normally coupled with a "truing-up" mechanism that deals with any unforeseen variations in demand that lead to an over-/under-recovery of target maximum revenue.

The MAR for each of the year determination period is established at the start of the period. The MAR is normally established by setting an annual percentage by which revenue can change, to allow retailers to recover the level of revenue regulators have determined using the building block approach.

Regulated businesses then propose new prices for the forthcoming year on the basis of its latest demand forecasts. Overall a revenue cap provides the retailer with a guaranteed amount of revenue (in present value terms) over the regulatory control period, independent of actual demand.

Under a revenue cap, retailers do not have a strong incentive to set individual prices in order to reflect the underlying costs of supply, given that they receive the same, fixed amount of revenue over the regulatory control period irrespective of the balance of prices they set. Under a revenue cap, the retailer has an incentive to minimise the cost of providing its services, since revenue received will remain unaffected, resulting in improved profitability.

Setting individual prices (price control)

Setting individual prices involves the jurisdictional regulator setting the individual prices, and their elements, for the retailers. This approach provides more certainty to customers over the regulated period, since prices will not be rebalanced. It may also result in more cost reflective and cost efficient prices where there is limited

90 Revenue risk is the risk that actual revenues received by a retailer may be different to the anticipated revenue. This may occur for a number of reasons, including that demand is different to that amount forecast.

competition, since prices are set by a jurisdictional regulator who may have this aim in mind.[91] However, setting individual prices does not provide flexibility in a market where competition is developing.

This may be considered more transparent, since the jurisdictional regulator sets the individual prices, with the rationale behind this set out in the regulator's determination. However, this will increase administrative costs for the regulator - but may decrease the administrative burden for retailers.[92]

A key issue to consider in the setting of individual prices is what costs should be reflected in a "fixed" cost component, and what should be reflected in a "variable" cost component. In order to promote economic efficiency, fixed costs should be reflected in the fixed components of the price; whereas variable costs should be reflected in the variable components of the price. For example, retail operating costs are largely fixed across customers, and are typically estimated on a "per customer basis". These are typically reflected in a fixed component of the price (as opposed to a per kWh charge).

7.1.4 Issues for discussion

There are a number of advantages and disadvantages associated with each form of regulation, which influence the most appropriate form to apply.

The appropriate form of regulation to apply may differ depending on the underlying characteristics of the market. For example, it is likely that in markets that are more competitive, providing retailers with flexibility to rebalance prices under a WAPC is likely to result in cost reflective prices. However, in markets supplied by a single retailer or with limited competition, it may be more preferable to set individual regulated prices. This is because as there are limited competitive forces being imposed on the retailer, there may be justification for more intrusive regulation to improve cost reflectivity.

This also may have implications for the administrative burden that retailers and jurisdictional regulators face. WAPC has higher burdens for retailers, compared with regulators; whereas setting individual prices has higher burdens for regulators, compared with retailers.

Also to be considered is whether the form of regulation should be applied to all cost components that comprise the regulated retail price. As discussed in chapter 4, network charges are typically passed through to customers. Therefore, retailers have little control over these prices. Given that network prices comprise a significant proportion of the regulated retail price, in the absence of competition, it may not be appropriate to apply a WAPC to this component. This is because retailers could amend regulated retail prices to provide for cross subsidies in the network cost component

91 However, for this to be maintained over time the regulator must escalate these prices in order to ensure they stay cost reflective and cost efficient.

92 We note that there may be additional costs on the retailer if costs are imposed that cannot be easily implemented in the retailer's billing system.

between different prices. However, allowing the form of regulation to cover all cost components does allow retailers more flexibility.

Finally, there is a question relating to what costs should be reflected in the variable and fixed components of regulated prices. Under a WAPC, the retailer itself is free to choose what elements will be reflected in variable and fixed components in the presence of competition. It will be incentivised to align the fixed and variable costs with the regulated prices as discussed above. However, where the jurisdictional regulator is setting individual prices it will need to consider what costs are reflected in each of the elements of the price.

Question 14 Form of regulation

(a) What is the most appropriate form of regulation to apply given our objective for retail price regulation?

(i) Does the appropriate method differ depending on the state of competition in the retail market? For instance, should a different method apply in jurisdictions with limited competition, such as Western Australia, the Northern Territory, and Tasmania?

(b) Should a form of regulation be applied to all cost components?

(c) What costs should be reflected in the variable and fixed components of regulated prices?

7.2 Determination length and within period pass throughs

7.2.1 Context

Retail electricity price determinations generally span a period of one to three years. Determinations which last longer than a year generally include annual reviews and cost pass through provisions.

Annual reviews reassess the level of wholesale and environmental scheme costs, as these costs are affected by market volatility. Jurisdictional regulators also use annual reviews to update the network cost component of the regulated price.

The cost pass through mechanism allows unexpected, uncontrollable, and significant changes in a retailer's costs, which have not been factored into a retail price determination or annual review, to be passed through to customers. Both jurisdictional regulators and retailers are generally able to initiate a pass through review, which allows both decreases and increases in costs to be passed through to customers. However, in practice, due to information asymmetry, most pass through reviews are initiated by retailers.

Issues relating to the length of the determination period, annual reviews, and pass through mechanisms are inter-related as these issues affect how cost recovery risks are

allocated between retailers and customers. As systematic risks are included in the retail margin, only changes in costs associated with non-systemic risks, which only affect retailers, should be taken into account. Further discussion on issues relating to the retail margin are discussed in chapter 5.

7.2.2 Methodology

Current retail electricity price determinations in NSW and Tasmania cover a three year period, while determinations cover a two year period in the ACT and one year in Queensland.[93] In practice, the decision on the length of the determination period is generally made by the relevant jurisdictional government as part of its terms of reference to the jurisdictional regulator.

All jurisdictions that have multiple year determinations have annual reviews of:

- wholesale energy costs;
- LRET and SRES costs; and
- jurisdictional environmental scheme costs.[94]

The current draft NSW retail electricity price determination also includes a reassessment of customer acquisition and retention costs as part of the annual review. This is because IPART has linked the level of these costs to its assessment of wholesale energy costs.[95]

Where determinations last for multiple years, annual reviews are generally undertaken using the same methodology that was set at the beginning of the determination period. This provides a degree of stability and predictability for retailers, which could assist in reducing their future cost recovery risks.

Pass through mechanisms to address unexpected changes in costs during the determination period have been provided for in NSW, the ACT, and Queensland.

In NSW and the ACT, pass through events are limited to regulatory change events and tax change events. In Queensland the QCA allows for changes in SRES and network costs to be passed through, but also allows retailers to seek a pass through for other cost changes on a case by case basis.[96] The QCA intends to assess pass through applications against defined criteria, which take into account whether the proposed costs:

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93 The QCA is required to determine prices for all regulated retail electricity prices for a three year period from 1 July 2013 to 30 June 2016, but is also required to set prices on an annual basis during this period.

94 In Tasmania, the energy cost allowance will only be adjusted each year if there has been a material change of five per cent or more in the wholesale cost estimate set out in the determination.

95 IPART, *Review of regulated retail prices for electricity, 2013 to 2016: Electricity - Draft Report*, April 2013.

96 QCA, *Final determination: Regulated Retail Electricity Prices 2013-14*, May 2013, p. 68.

- are significant exogenous, unforeseen, and unavoidable;
- have not already been provided for through other means; and
- have a material impact on retailers and/or customers.[97]

Retailers in NSW and the ACT are only able to seek a pass through where the total effect of the event increases or decreases the revenue they receive from regulated prices by 0.25 per cent in the year the event occurs in. In contrast, in Queensland there is no specific materiality threshold for pass through events to avoid constraining the regulator in its assessment of pass through applications. However, the QCA does consider whether the event has a material impact on retailers and/or customers, when considering pass through events.

7.2.3 Issues for discussion

Length of determination period and annual review process

The length of the determination period, and annual review process, has implications for the incentives that a retailer faces. Longer periods create strong incentives for retailers to operate more efficiently, as retailers are able to retain any difference between the regulated price and their costs as profit.

The decision on how long a determination lasts for represents a balance between:

- flexibility to ensure efficient changes in retailers' costs are taken into account in the regulated retail price; and
- certainty to provide retailers and customers with stability as to the regulated retail price that will be charged and the methodology that will be used to set these prices.

The risks of a longer determination period are that the costs that a retailer faces may change over the determination period. It may therefore either over- or under-recover costs. However, the potential risks associated with longer determination periods are likely to be mitigated where there is an annual review process in place to reassess large and volatile cost components. However, longer periods do provide strong incentives for retailers to minimise costs.

In determining which cost components should be subject to annual review, consideration is generally given to which components:

- could be subject to both regular and significant change over a determination period of two years or more; and
- have fluctuations which are beyond the reasonable control of retailers.

97 QCA, *Final determination: Regulated Retail Electricity Prices 2013-14*, May 2013, p. 75.

Costs components which do not meet these requirements should remain unchanged during the annual review to maintain incentives on retailers to effectively manage costs which are within their control.

Cost pass through

In contrast, significant changes in the level of cost components which are of a more unmanageable nature to retailers are more suited to consideration under a pass through mechanism.

In determining the appropriate structure of a pass through mechanism, providing a specific list of pass through events may provide retailers with a degree of certainty about which costs they can recover and could also reduce the potential administrative costs associated with the pass through mechanism.

A list of pass through events reduces the incentive on retailers to manage or mitigate the risks associated with the occurrence of these events, if they have improved certainty they will be able to recover the cost impact through the pass through mechanism.

However, a defined list of events may limit the flexibility that regulators and retailers have in assessing and responding to unforeseen events.

It has been suggested that a decision on whether there should be a materiality threshold for a pass through mechanism and the appropriate level of this threshold should represent a balance between:

- minimising administrative costs for both retailers and regulators to ensure reviews do not occur too frequently; and
- ensuring that significant, uncontrollable, and unexpected changes in costs are passed through to customers, to minimise cost recovery risks for retailers.

There is also the potential that a materiality threshold may assist in minimising price fluctuations for customers, as it constrains how frequently retailers are able to seek price changes.

Question 15 Determination length and within period pass throughs

(a) What is an appropriate length of a retail price determination?

(b) If a retail price determination lasts longer than a year, what cost components should be subject to an annual review and should the methodologies for estimating cost components remain unchanged?

(c) Should retail price determinations include a pass through mechanism? If so, what events should be included the pass through mechanism and what should be the materiality threshold?

A Summary of Current Jurisdictional Approaches

This appendix provides a summary of the current jurisdictional approaches to regulating retail prices, for those jurisdictions that retain retail price regulation. It includes details on the form and timing of regulation, as well as the methods used to estimate each cost component of the regulated retail price.

A.1 Australian Capital Territory

A.1.1 Overarching policy guidance

The Independent Competition and Regulatory Commission (ICRC) sets regulated retail prices for the ACT in accordance with a terms of reference issued by the ACT Treasurer under the *Independent Competition and Regulatory Commission Act 1997.* The terms of reference provide guidance on the determination of regulated retail prices:[98]

- the prices should be set for the period 1 July 2012 to 30 June 2014, with provision where appropriate for a review by 30 June 2013;
- the ICRC should take into account the following matters:
  - the impact on direct electricity costs of changes in government policies (eg the carbon tax), and pass through of those costs to regulated prices;
  - the efficient and prudent cost of managing risk in the cost of purchasing electricity;
  - the requirements of s.20 of the *Independent Competition and Regulatory Commission Act 1997*, which include the consideration of social and environmental consequences; and
  - any other matters the ICRC considers relevant;
- the ICRC must produce its final report in sufficient time to allow ActewAGL Retail (the incumbent retailer) to make any necessary changes to its billing system, and to provide information on the new price to customers.

A.1.2 Form of regulation

The ICRC sets a weighted average price cap.[99] ActewAGL Retail is able to rebalance its individual prices under this cap so long as the adjustment does not exceed the allowed percentage change.

98 Independent Competition and Regulatory Commission (Price Direction for the Supply of Electricity to Franchise Customers), Terms of Reference Determination 2011.

99 ICRC, *Retail prices for franchise electricity customers 2012-14*, Final report, June 2012.

In order to determine the allowed percentage, the ICRC adopts an index based approach, with the index reflecting year on year changes in the individual cost components. These cost components are estimated based on the economically efficient costs of an incumbent electricity retailer providing retail electricity supply services to customers on standard contracts.

The final regulated retail price is then published by the ICRC.

A.1.3 Annual adjustments and pass through

ICRC also engages in an annual price adjustment, as it current determination spans a two year period. In this, ActewAGL Retail submits to the ICRC its: calculation of the CPI adjustment,[100] the calculation of costs associated with achieving environmental objectives, and any pass-through costs. It also submits to the ICRC updated network costs for verification. Additionally, the ICRC updates the wholesale energy cost allowance.[101] Based on this information, the ICRC then determines the percentage by which the weighted average price cap will adjust for that year.

Outside of the annual review and determination process, ActewAGL Retail may also make applications to the ICRC for cost pass-throughs relating to regulatory change events and tax change events.

A pass-through will only be made where ActewAGL Retail's change in costs of providing services to regulated retail customers is greater than 0.25 per cent of ActewAGL's revenue from regulated retail prices in the 12 months to March of the most recent year.

A.1.4 Cost components

Table A.1 below sets out the ICRC's methods for calculating each of the cost components.

100 This adjust several components including energy contracting costs, NEM fees and retail operating costs.

101 The ICRC will also undertake a review of the energy purchase cost methodology, where it believes that market developments in relation to energy purchasing arrangements have changed so that the current methodology for determining energy purchase costs is no longer appropriate.

Table A.1 Methods for estimating cost components for ACT

Cost component		Approach
Wholesale energy cost	Energy purchase costs	To calculate the energy purchase costs, the ICRC uses an ex post model to estimate the actual costs of a conservative hedging strategy for a retailer based on historical data. Using historic load, and spot price data, the ICRC's model calculates the cost of the assumed hedging strategy to an electricity retailer for the upcoming year.
	NEM fees and ancillary service costs	To calculate the NEM fees and ancillary service costs, the ICRC adjusts the cost allowance by annual changes in CPI. This initial allowance was set by reference to the NEM fees included in IPART's determination in 2007.
	Energy loss costs	To calculate the energy loss costs the ICRC uses AEMO's reported loss factors for distribution and transmission, and applies this to its estimates of the energy purchase costs, and RET costs.
	Energy contracting costs	To calculate the energy contracting costs (costs incurred by the incumbent retailer in managing an electricity trading desk), the ICRC adjusts the cost by annual changes in CPI. The initial value was set based on a review of market information in 2007.
Network charges		The ICRC includes the network costs as determined and approved by the AER.
Retail operating costs		The ICRC considers that an incumbent retailer, rather than a new entrant, retailer is the relevant regulatory benchmark. The ICRC adjusts the cost allowance by annual changes in CPI. The initial allowance (set in 2003) was set based on information obtained from ActewAGL, and a review of other regulatory decisions. The ICRC does not provide an allowance for customer acquisition and retention costs since it does not consider that the the inclusion of an allowance for CARC or a higher margin, will "on their own move the ACT

Cost component		Approach
		retail electricity market from being contestable [...] to one that is competitive and brings benefits to the ACT community."[102]
Retail margin		The ICRC reviewed the retail margin analysis undertaken by IPART and its adviser, the Strategic Financing Group (SFG). It considered that this analysis was extensive, and so the ICRC has adopted the same retail margin.
RET costs	LRET	LRET costs are based on estimated forward prices over a 12 month period, including a holding cost to compensate the retailer for the cost it incurs in holding the certificates up to their surrender or alternatively the start of the next financial year. The renewable power percentage is based on an estimate provided by the Clean Energy Regulator.
	SRES	SRES costs are based on estimated forward prices over a 12 month period, including a holding cost to compensate the retailer for the cost it incurs in holding the certificates up to their surrender or alternatively the start of the next financial year. The STP is based on an estimate provided by the Clean Energy Regulator.
Other environmental and jurisdictional scheme costs	ACT government energy efficiency scheme	Cost estimates associated with this scheme are obtained from ActewAGL Retail, based on the costs from the Regulatory Impact Statement associated with the scheme. These costs represent the effective penalty price for the scheme. These costs are then verified by the ICRC.

102 ICRC, Retail prices for franchise electricity customers 2012-14, Final report, June 2012, p. 6.

A.2 New South Wales

A.2.1 Overarching policy guidance

IPART sets regulated retail prices in NSW in accordance with a terms of reference provided by the NSW Minister for Resources and Energy. The terms of reference provide guidance on the determination of regulated retail electricity prices, including that:[103]

- the prices should be set for the period 1 July 2013 to 30 June 2016;
- the continuation of price regulation is underpinned by two guiding principles:
  - to protect customers from retailers exerting market power where competition is ineffective or yet to be assessed; and
  - to facilitate competition in the electricity market;
- the determination for each year the terms of reference are in force should:
  - result in prices that recover the efficient costs of supplying small retail customers;
  - apply any change in the regulated tariffs on 1 July 2013 and annually thereafter on 1 July; and
  - support the long term interests of consumers of electricity and the stability of the electricity market;
- the energy purchase cost allowance must be set in accordance with the following:
  - it must be set no lower than the weighted average of a market based approach (25 per cent) and the long run marginal cost (75 per cent);
  - two separate regulated load forecasts must be calculated for the purposes of the determination;
  - a periodic review of the energy purchase cost allowance should be allowed;
  - market fees and ancillary fee costs should be included; and
  - energy losses as published by AEMO should be included;
- IPART should determine an allowance for retail operating cots based on efficient costs;

103 NSW Minister for Resources and Energy, Terms of Reference, 27 September 2012.

- IPART should determine an appropriate margin giving consideration to any material risks not compensated for elsewhere, which arise from supplying small customers; and

- IPART must release the final report in time for price changes to come into effect on 1 July 2013.

Consistent with its terms of reference, IPART have been explicit that the determination needs to balance two potentially conflicting objectives:[104]

- setting regulated prices that reflect the efficient costs of supply, to protect customers in the short-term; and

- to support the interests of customers in the long-term by facilitating competition.

These considerations have guided IPART's setting of regulated prices.

A.2.2 Form of regulation

IPART regulates prices under a weighted average price cap, under which retailers are able to rebalance their individual prices, as long as the adjustment in the weighted average prices does not exceed the allowed percentage change. The quantities used to weight prices are based on the consumption and customer numbers in the previous year.

The percentage change is developed using a building block or "N + R" approach.

A.2.3 Annual review and pass through

IPART also undertakes annual reviews of specified cost allowances within the determination period. This involves IPART inviting retailers to submit annual pricing proposals by mid-January each year. IPART then assesses whether these proposals are reasonable.

IPART also reviews the energy purchase cost allowance (including LRMC and market based cost allowances), energy losses, environmental costs, and customer acquisition and retention costs annually.

A cost pass through mechanism is also allowed for, which enables retailers to pass through incremental, efficient costs, associated with defined regulatory or taxation change events. There is a materiality threshold of 0.25 per cent of the regulated revenue. Applications can be made within 90 days of any eligible event, with IPART aiming to assess applications within 60 days.

104 IPART, Review of regulated retail prices for electricity, 2013 to 2016, Draft Report, April 2013, p. 22.

A.2.4 Cost components

Table A.2 below sets out IPART's methods for calculating each of the cost components.

Table A.2 Methods for estimating cost components for NSW

Cost component		Approach
Wholesale energy cost	Energy purchase costs	IPART sets a price floor, based on: 75 per cent greenfields LRMC, and 25 per cent of a market based approach. To estimate the market based energy costs, IPART uses publicly available forward price data for the first year of the determination. This is because IPART considers there is sufficient liquidity in forward prices. For the latter two years of the determination period, IPART considers there is less liquidity and so modelled forward prices have been used. However, since these energy costs are updated annually, IPART's likely to update these estimates using data from forward price data. The wholesale energy allowance was also modified to reflect costs associated with the carbon price.
	Volatility allowance	IPART includes a volatility allowance, which compensates retailers for the additional costs associated with the volatile nature of the load that retailers serve, and the wholesale electricity prices that they face. This is calculated as a statistical measure ("standard deviation") of the modelled wholesale market based costs.
	NEM fee and ancillary costs	NEM market fee estimates are based on estimate of market fees from AEMO's most recent budget documents. Ancillary service costs are forecast based on average real ancillary services costs in NSW over the past 10 financial years.
	Energy loss costs	To calculate the energy loss costs IPART uses AEMO's reported loss factors for distribution and transmission, and applies this to its estimates of the energy purchase costs, NEM fees, and environmental scheme cost allowances.
Network charges		IPART includes the network costs as determined and approved by the AER.

Cost component	Approach
Retail operating costs	IPART defines a standard retailer as: • an incumbent that has achieved economies of scale; • a standalone retailer in NSW that is not vertically integrated with distribution; • services retail customers in NSW, and other jurisdictions across the NEM; • can offer standard and market contracts; and • has an existing customer base to defend. The costs are calculated as a range based on bottom up information, using information provided by retailers. This is compared with data on the retail operating costs of publicly listed retailers, and other regulators' decisions. These costs will be held constant in real terms over the determination period. That is they will only be adjusted by CPI.
Customer acquisition and retention cost allowance	IPART also includes a specific customer acquisition and retention cost allowance. This was determined by undertaking both a top down or outcomes based analysis; and a bottom up analysis. IPART then determined its view on the appropriate allowance. IPART considers that the required floor price for the wholesale energy costs imposes a degree of headroom. Therefore, the customer acquisition and retention cost allowance will only be included to the extent that the floor price does not already include this allowance.
Retail margin	IPART engages a consultant to estimate a retail margin under three approaches: • expected returns; • bottom-up; and

Cost component		Approach
		• benchmarking. An average of these three estimates was then used. The margin is applied as a fixed percentage across all cost components.
RET costs	LRET	LRET costs are calculated based on the LRMC of meeting the overall national LRET target for that year. The renewable power percentage is based on an estimate provided by the Clean Energy Regulator.
	SRES	SRES costs are based on the current market price of certificates, including a holding cost to compensate the retailer for the cost it incurs in holding the certificates up to their surrender or alternatively the start of the next financial year. The STP is based on an estimate provided by the Clean Energy Regulator.
Other environmental and jurisdictional scheme costs	NSW Energy Savings Scheme	This is also a spot market for trading of certificates. The price is based on the base after-tax penalty price as a proxy for the price. The quantity of certificates is based on the relevant liabilities as imposed in the Energy Saving Schemes obligations.

A.3 Queensland

A.3.1 Overarching policy guidance

The Queensland Competition Authority (QCA) sets regulated prices in Queensland in accordance with a delegation from the Queensland government.

The delegation has requirements on how regulated retail prices should be set, including:

- the QCA is to calculate regulated prices and publish an annual price determination, in the form of a tariff schedule;
- in making a price determination, the QCA must have regard to (amongst others):
  - actual costs of making, producing, or supplying the goods or services;
  - the effect of the price determination on competition in the Queensland retail electricity market; and
- the QCA must also have regard to other matters set out in the delegation, including:
  - uniform tariff policy - wherever possible, non-market customers of the same class should have access to uniform retail tariffs and pay the same notified price for their electricity supply, regardless of their geographic location;
  - time of use pricing - whether the approach to calculating time of use tariffs can strengthen or enhance the underlying network price signals and encourage customers to switch to time of use tariffs and reduce their energy consumption during peak times;
  - the QCA must use a N+R cost build up; and
  - for residential and small business customers, the network cost component of the retail price must be based on the network charges to be levied by Energex.

A.3.2 Form of regulation

Retail prices are determined using a building block or N+R cost build up approach. The QCA then sets individual prices based on the outcomes of applying this approach.

The Queensland Government decided to freeze regulated prices for the standard residential tariff for 2013-13, subject to the inclusion of costs associated with the carbon tax. Under its current delegation, the QCA is required to consider how to transition these customers off this frozen price, to a more cost-reflective level. Accordingly, the

QCA has established some further transitional measures for 2013-14 and beyond in this determination.

A.3.3 Annual review and pass through

The QCA also allows for a cost pass through mechanism during the current determination period. This will allow retailers to recover the efficient costs or savings arising from certain, unavoidable and unforseen events. It has set out two specific events as possible pass-through events: differences in network charges, and differences in SRES costs. Other events will be considered as necessary, based on the criteria contained in the determination.

A.3.4 Cost components

Table A.3 below sets out QCA's methods for calculating each of the cost components.

Table A.3 Methods for estimating cost components for Queensland

Cost component		Approach
Wholesale energy cost	Energy purchase costs	To estimate energy purchase costs, the QCA uses a market based approach. This uses estimates of futures prices.
	NEM fee and ancillary costs	NEM market fee estimates are based on an estimate of market fees from AEMO's most recent budget documents. Ancillary service costs are forecast based on historical data.
	Energy loss costs	To calculate the energy loss costs QCA uses AEMO's reported loss factors for distribution and transmission, and applies this to its estimates of the energy purchase costs, NEM fees and environmental energy cost allowances.
	Prudential capital	QCA considers that retailers that hedge through futures will face higher prudential capital requirements than retailers that enter into power purchase agreements or invest in generation. An estimate of these prudential costs has been included.
Network charges		For small residential customers, Energex's approved network charges were used as the basis for this component. This included pass through time of use network tariffs, where possible.
Retail operating costs	Retail operating costs	The QCA has adopted a benchmarking approach to calculating the retail operating cost component. The QCA's allowance is based on IPART's proposed allowance for small customers. The retail operating costs are adjusted over the determination period by CPI. An allowance is also included to reflect the imposition of regulatory fees by the QCA. This is calculated

Cost component		Approach
		based on its estimate of the annualised actual cost of performing its functions over a five year period.
	Customer acquisition and retention cost allowance	QCA also includes a specific customer acquisition and retention cost allowance. QCA maintained its allowance from a previous determination, and has escalated this by CPI in its latest determination. This was set in 2007-08 based on an estimate of the benchmark costs of a customer switching retailers and a customer transferring to a market contract with its existing retailer.
Retail margin		The QCA has undertaken a benchmarking approach to setting the retail margin. It has based its estimate on IPART's estimate of the retail margin. The margin is applied as a fixed percentage across all cost components.
Headroom		The QCA includes a specific allowance for headroom, in order to sustain an actively competitive market. In setting this, the QCA considered the current state of competition (switching rates, the number of active retailers and degree of market concentration, available market offers, and customer participation and engagement). The headroom allowance is applied as a fixed percentage of total costs.
RET costs	LRET	LRET costs are calculated based on the historical weekly market prices for LGCs. The renewable power percentage is based on an estimate provided by the Clean Energy Regulator.
	SRES	SRES costs are based on the clearing house price. The STP is based on an estimate provided by the Clean Energy Regulator.
Other environmental and jurisdictional scheme costs	Queensland Gas Scheme	The price is calculated using current market data. The quantity is estimated based on the legal liabilities faced by retailers underneath the scheme.

A.4 Tasmania

Currently, the Office of the Tasmanian Economic Regulator (OTTER) is responsible for setting regulated retail prices. However, the Tasmanian government is currently undertaking a number of reforms across the energy industry under its "Energy for the Future" reforms, which will affect how prices will be regulated. These reforms are discussed in more detail in section A.4.2.

A.4.1 Current determination

Due to the "Energy for the Future" reforms, the government announced it would "roll forward" the 2010 retail price determination for six months, to coincide with the planned commencement of full retail competition in 2014. This change was made through a government regulation.[105]

This allowed OTTER to make a determination in 2013, without having to revoke the current determination, conduct an investigation, or prepare draft and final reports, as would normally occur. The regulation essentially requires OTTEr to adopt the methods approved for the 2010 determination, and to adjust the values used for the last year of the determination by CPI.

Form of regulation

As set out in the 2010 determination, OTTER regulates retail prices using a revenue cap approach, which bases prices on the maximum revenue that a retailer can recover from small customers. The maximum revenue allowance was calculated using a building blocks approach.

Annual review and pass through

OTTER included a mechanism that allowed for the wholesale energy cost allowance to be adjusted each year, if it has been determined that there has been a material change (ie five per cent or more) in the LRMC estimate provided for in the determination. Changes in RET costs will also be passed through in the regulated retail price.

Cost components

The methodologies used to calculate the cost components in OTTER's 2010 determination are set out in Table A.4 below.

105 Electricity Supply Industry (Price Control and Related Matters) Regulations 2012.

Table A.4 Methods for estimating cost components for Tasmania

Cost component		Approach
Wholesale energy cost	Energy purchase costs	OTTER estimates energy purchase costs based on the LRMC of a notional new generator supplying electricity to non-contestable customers in Tasmania.
	NEM fee and ancillary service costs	Market participant fees were estimated by Aurora, and approved by OTTER. Ancillary service costs were based on historical estimates.
	Energy loss costs	To calculate the energy loss costs, OTTER uses AEMO's reported loss factors for distribution and transmission, and applies this to its estimates of the energy purchase costs, NEM fees and environmental scheme cost allowances.
Network charges		OTTER includes network costs as determined and approved by the AER.
Retail operating costs		OTTER undertakes benchmarking of other regulatory decisions. Aurora (the retailer) also provided information to OTTER on its actual retail operating costs, for assessment against these interstate benchmarks. OTTER then determines an allowance for retail operating costs using this information. OTTER's allowance was close to the ICRC's base allowance, which Aurora considers is its most appropriate comparator.
Retail margin		OTTER undertook an expected returns assessment, and looked at benchmarking information. This was used in combination to set the retail margin. The margin is applied as a fixed percentage across all cost components.

Cost component		Approach
RET costs	LRET and SRES	Aurora's forecast estimates in 2010 (the 2010 determination was undertaken prior to the split in the RET target) were based on Aurora's forward estimates, and information from the Office of the Renewable Energy Regulator (now the Clean Energy Regulator).[106]

106 The AEMC notes that OTTER approves Aurora's tariffs annually. In the more recent pricing approvals, the split in the RET scheme has been recognised. However, the sources of data are still based on Aurora's forward estimates, and information from the Clean Energy Regulator.

A.4.2 Energy for the Future

The "Energy for the Future" reforms to the Tasmanian electricity supply industry are enacted through the *Electricity Reform (Implementation) Act 2013*. This includes a number of reforms related to the regulation of retail prices such as:

- the introduction of full retail competition from 1 January 2014, facilitated by the sale of Aurora Energy's customers to private sector retailers; and
- independent regulation of Hydro Tasmania's wholesale market activities by OTTER.

Retail price and non-price regulation

OTTER will continue to regulate prices for regulated retail contracts for residential and small business customers until competition is effective. OTTER will be required to protect the long term interests of customers by ensuring that prices are efficient and the electricity supply industry is financially viable. It will also be given a new objective of monitoring and reporting on the development of competition in the electricity retail market.

There will be an interim retail price determination completed by OTTER, with an amended process to suit the unique circumstances of the retail divestment. The interim price determination will apply for the period 1 January 2014 to 30 June 2015. OTTER is required to complete the interim retail price determination by 31 July 2013.

Going forward, OTTER will have discretion to determine the frequency of investigations and will be required to consult publicly. OTTER will also be required to undertake annual approvals of regulated prices offered by retailers.

In terms of the methods that must be applied in setting retail prices from 1 June 2014:

- the wholesale energy allowance assumed when setting regulated retail prices will be the regulated price for load-following swaps offered by Hydro Tasmania under the wholesale market regulatory arrangements (see below);
- network costs will remain as a pass through cost as determined by the AER; and
- other retail cost allowances and margins will be set by OTTER.

Wholesale contract market regulation

Regulation of Hydro Tasmania will take the form of an obligation on Hydro Tasmania to offer a range of regulated contract products, at regulated prices and with standard terms and conditions.

The form of regulation will be prescribed, and must be used in all wholesale pricing instruments. The form of regulation must always include a requirement on Hydro Tasmania to offer a regulated load-following swap product.

The government will make the first wholesale pricing instrument, which will have a duration of 5 years, and will be administered by OTTER. OTTER will be required to investigate and determine a new pricing instrument at the expiry of the government's wholesale pricing instrument in accordance with a number of principles. Hydro Tasmania will price regulated products using the mandated pricing methodology, with OTTER having an ongoing monitoring role and powers to investigate Hydro Tasmania's regulated pricing.

The methodology for pricing regulated contracts, and an explanation of the methodology, must be made available to the market. Hydro Tasmania will be required to make a number of information disclosures to the Regulator to support the Regulator's monitoring and investigation role.

A.5 Northern Territory

The government owned Power and Water Corporation (PWC) is the primary provider of generation, network, and retail services in the Northern Territory.

The Northern Territory Utilities Commission is responsible for network price regulation, and also has oversight of wholesale electricity prices to ensure that these are cost reflective.

Retail electricity prices are regulated by the Northern Territory government, via an Electricity Pricing Order issued by the Treasurer:[107]

- set under a uniform tariff policy; and
- influenced by levels of subsidisation (which are determined by government policy).

There is little public information available on how these prices are set.

In November 2012, the Northern Territory government announced a 30 per cent price increase in retail prices. In March 2013, this was amended downwards to 20 per cent, with over-payments to be credited to customers.[108]

The remaining 10 per cent increases in prices will be phased in over 2014 and 2015, with a 5 per cent increase coming into effect on 1 January 2014 and a further 5 per cent to be applied on 1 January 2015.[109]

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107 See: http://www.utilicom.nt.gov.au/Electricity/pricing/Pages/Electricity-Retail-Pricing.aspx.

108 PowerWater, NT Government reviews tariffs, 28 March 2013. See: http://www.powerwater.com.au/customers/current_bulletins/news/nt_government_reviews_tariffs.

A.6 Western Australia

Residential electricity prices are set by the Western Australian government, by way of government gazettes. These are influenced by levels of subsidisation for network and retail services (which are also set by the Western Australian government). There is little public information available on how these prices are set.

In 2011, the WA Treasurer requested that the Economic Regulation Authority (ERA) undertake an inquiry into the efficiency of Synergy's (the retailer) costs and electricity tariffs.[110] The final report was tabled in the Western Australian parliament in July 2012.

The ERA was asked to look at how much of an increase in prices would be required to achieve efficient cost reflective prices. In doing so, the ERA was guided by the overarching objectives that consumers should only pay the costs that would be incurred if the market for electricity is effectively competitive and efficient. The ERA also took into account the government's polity to keep tariffs at the same level for each customer category, regardless of their location.

In summary, the ERA concluded that Synergy's overall revenue from regulated customers, on average, would have to increase by approximately 21 per cent to achieve efficient cost reflective prices, after allowing for the additional cost associated with the carbon pricing regime. In estimating these costs, the ERA used an LRMC to calculate the energy purchase costs.

The report was designed to inform the government's decision making. There have been no price changes since this inquiry.

109 Ibid.

110 The ERA does not set retail electricity prices. However, the ERA can be called on by the government to conduct independent inquiries on economic issues.

Abbreviations

AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CAPM	Capital Asset Pricing Model
CoAG	Council of Australian Governments
ESCOSA	Essential Services Commission of South Australia
ICRC	Independent Competition and Regulatory Commission
LGCs	Large-scale Generation Certificates
LRET	Large Scale Renewable Energy Target
LRMC	Long-run Marginal Cost
MAR	Maximum Allowed Revenue
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
NERR	National Energy Retail Rules
NSW	New South Wales
OTTER	Office of the Tasmanian Economic Regulator
RET	Renewable Energy Target
SCER	Standing Council on Energy and Resources
SRES	Small Scale Renewable Energy Scheme
STCs	Small-Scale Technology Certificates
STP	Small Scale Technology Percentage
WAPC	Weighted Average Price Cap