AEMC

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Australian Energy Market Commission

FINAL REPORT

Advice on best practice retail price methodology

27 September 2013

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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 by a competitive market offer.[1] In some National Electricity Market (NEM) jurisdictions the government has determined that a regulator should also set a regulated retail price for electricity. Where a regulated retail price exists within a contestable market, the customer has the choice of being supplied by the regulated retail price, or by the competitive market offer.

The approach taken to setting the regulated retail price for small customers currently differs across jurisdictions. For example, a range of different approaches are adopted in estimating the energy purchase 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. There have been significant developments in retail energy markets since the Council of Australian Governments (COAG) first identified a need for our report in December 2012. This includes: the decision by the South Australian Government to remove regulated retail prices in South Australia in February 2013; and the announcement by the Queensland Government of its intention to remove regulated retail prices in South East Queensland by 1 July 2015.

Purpose of our advice

The Standing Council on Energy and Resources (SCER) has requested the Australian Energy Market Commission (AEMC or Commission) provide advice on a recommended method for the regulation of retail electricity prices for small customers. The terms of reference indicate that jurisdictions may choose to adopt this method where regulation of retail prices is retained. Jurisdictions may also consider allocating regulatory responsibility for retail price regulation to the Australian Energy Regulator (AER).[2]

Recommendations

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

The AEMC has articulated an objective for retail price regulation that can accommodate the differing retail market characteristics 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 understands that, while the Northern Territory government allows for this choice, there are no retailers other than the regulated incumbent.

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

In promoting 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 approach to retail price regulation outlined in this advice is principles based, and avoids being too prescriptive in approach. This reflects that electricity retail markets across Australia are at different stages of development and have different levels of competition, so no single method will be suitable in all circumstances.

Competition and retail prices

One limb of the objective relates to the facilitation of competition. The Commission considers that effective competitive markets are generally the best means of promoting customers' long-term interests. The benefits of competition include: prices which trend to efficient levels over time; incentives for retailers to reduce costs and prices 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 feasible, or where competition is not sufficiently developed to provide these benefits. This may also include situations where barriers to entry exist that help allow too large a return, compared to that in an effective market, to be made by incumbent retailers.

Regulation aims to act as a proxy for effective competitive outcomes. Therefore, regulated retail prices must be set to allow a retailer to recover efficient costs, but not result in customers paying too much. This balance is difficult to achieve, and the effect of getting it wrong can significantly impede the development of competitive markets that are in the long-term interests of customers. In recognition of this difficulty, this report provides advice on the calculation of the regulated retail price components.

Competition is effective where there is the absence of a single party with a strong influence on prices. A regulated retail price, by definition, has a substantial influence on the price for electricity within a jurisdiction since it is the price that both new entrant and incumbent retailers compete against. This regulated retail price may therefore influence the development of competition within a market. Given this, the Commission has structured the objective as above - reflecting the balance between reflecting efficient costs, and facilitating competition.

Wholesale energy costs

The wholesale energy cost is one of the largest cost components in retail electricity prices, making it a significant focus for regulators when setting regulated retail prices.

Setting this cost component involves estimating future energy purchase costs for an efficient retailer. The Commission considers that the method used to estimate energy purchase costs should have the following efficiency characteristics: be forward-looking in approach; reflect, and be responsive to, the current demand/supply balance; and include a time dimension.

Retailers can buy energy directly from the wholesale spot market, where prices can be volatile. Retailers manage this volatility (and associated risks) through a variety of strategies, including entering into financial contracts. These contracts lock in future prices paid for wholesale electricity. A market based method, based on these futures prices, will generally produce the best estimates of future energy purchase costs. This is because use of data from a liquid futures market encapsulates all three efficiency characteristics outlined above. This will result in customers paying efficient costs.

The Commission recommends that futures prices should be used as the basis for estimating energy purchase costs. However, if a regulator considers that these prices are likely to produce unreliable results (due to either insufficient liquidity in the contracts market; or structural market biases meaning that futures prices may not be a good representation of expected prices), then the Commission considers that a method that approximates the long-term costs of generation (commonly known as a long-run marginal cost (LRMC) approach) should be used to estimate energy purchase costs. The Commission suggests that a perturbation LRMC method is most appropriate. This is because the perturbation LRMC method is the only LRMC method to meet all three efficiency characteristics outlined above.

In making a judgment about whether a futures market method can be expected to produce reliable results, the regulator should have regard to whether a LRMC approach is likely to produce better quality estimates.

Network costs

Network charges should be reflected in the network cost component of regulated retail prices. This component should reflect the structure and shape of the network charge set by distribution businesses. For example, if a network business has set different charges for different times of day, then a regulated retail price should be developed that is reflective of these charges.

Retail operating costs and margin

Retail operating costs should be based on a standard retailer, defined as the incumbent retailer who is required to offer the regulated retail price in a particular jurisdiction. Regulators should use both a bottom-up assessment and benchmarking as tools in assessing the efficient level of retail operating costs.

The retail margin seeks to provide the retailer with a rate of return to enable it to finance the ongoing operation of its business. Rather than a detailed method, the Commission has proposed an objective for regulators to consider when determining

the allowed retail margin. The regulator needs to be confident that its estimate of the retail margin adequately reflects the circumstances of the business offering regulated retail prices.

Headroom for facilitating competition

The Commission considers that effective competitive markets are generally the best means of promoting customers' long-term interests. For competitive prices to develop, regulated retail prices must not create barriers to retailers efficiently entering the market and competing for customers. Accordingly, where jurisdictions consider competition to be feasible, a form of "headroom" should be included to facilitate competition.

Any form of headroom that is included should be transparently calculated by regulators, and included as a separate line item in regulated retail prices to further promote transparency. The Commission consider that the setting of this cost component is imprecise, and so to some extent will reflect the regulator's assessment of what is necessary to meet the objective.

Environmental scheme costs

Environmental schemes impose costs on retailers which are passed on to customers. Consistent with our advice on the energy purchase cost allowance the Commission recommends that, where available, liquid futures prices in the market for the scheme (eg the market for certificates under the RET scheme) should be used to determine the allowance. Only where there is no futures market or insufficient trading on the futures market for this scheme should alternate methods be used.

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.[3] This paper sets out our final recommendations developed in relation to this advice.

1.1 Purpose of advice

Most small electricity customers can choose to be supplied under either a standard electricity contract or a competitive market offer. In all jurisdictions, except for Victoria and South Australia, the price of standard contracts (the "regulated retail price") is set by a jurisdictional regulator or government.[4] 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.[5]

The proportion of small customers on standard contracts with a regulated retail price varies across National Electricity Market (NEM) jurisdictions, ranging from 30 per cent in South-East Queensland[6] to 100 per cent in Tasmania.[7] In NEM jurisdictions with retail price regulation, regulators determine regulated retail prices based on estimates of: wholesale energy costs; transmission and distribution network charges; retailer operating costs and margins; and environmental and jurisdictional scheme costs.[8] Regulators are usually guided in their approach by terms of reference issued by the relevant government.

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3 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".

4 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".

5 These comprise the National Energy Customer Framework (NECF), which is a national arrangement governing the sale and supply of electricity and natural gas to retail customers. The NECF has commenced in the Australian Capital Territory (ACT), Tasmania, the Commonwealth, South Australia and New South Wales (NSW). Queensland has announced that it will implement the NECF in early to mid-2014.

6 Queensland Competition Authority, *Regulated Retail Electricity Prices 2013-14,* Final Determination, May 2013, p. 2.

7 Since Tasmania does not currently have full retail competition, where customers can choose retailers, all small customers currently face regulated retail prices. Tasmania has announced that it will introduce full retail competition from 1 January 2014.

8 The Queensland Competition Authority (QCA) sets regulated retail prices under delegation from the Queensland Government. As a result, the Minister can set electricity prices at any time in accordance with Government policy.

In Western Australia and the Northern Territory, the majority of customers are on standing electricity contract prices.[9] Regulated retail 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 SCER reaffirmed their commitment to removing regulated retail prices where competition is effective. SCER also tasked the AEMC with developing a recommended method for retail electricity price regulation - the subject of this paper. Jurisdictions will consider whether to apply this method in setting retail electricity prices.[10]

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

An efficient, nationally consistent and stable method for setting regulated retail prices provides benefits for customers, retailers and generators while competition is developing.

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

- the expected revenue from the investment, which includes 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.

Retailer's investment decisions (ie to enter a market) 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 expected revenue.

The regulated retail price plays an important role in developing competitive markets since both new entrant and existing retailers essentially compete against this price. The regulated retail price acts as a common reference point against which retailers can quote market offers.[11] Market (or unregulated) prices offered by new retailers are generally at a discount to this regulated retail price. This enables new retailers to gain customers and market share. This competition allows customers to benefit from lower prices and improved choice and service.

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9 In Western Australia, small retail electricity customers are currently unable to be supplied under a market offer. Full retail contestability was introduced to Northern Territory on a progressive basis since 2000. However, Power and Water Corporation (PWC) is currently the sole retailer operating in the Northern Territory. Retail licences have recently been granted to new entrants, QEnergy in 2011 and ERM Power in 2012, but 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.

10 Terms of Reference, p. 1.

11 See: Queensland Consumers Association, Issues Paper submission, p. 1.

Therefore, regulated retail prices can influence the level of competition, or development of competition in a market. When there is uncertainty (or less predictability) about how retail prices are regulated, retailers may be less likely to enter into a market. This is because as uncertainty about the regulated retail price that retailers compete against increases, so too does the risk that they will not realise their expected revenue.

An efficient, nationally consistent and stable method for setting regulated retail prices provides potential new entrant retailers with more confidence when deciding whether to enter a market. This increases the likelihood of entry, resulting in increased competition, and more innovative products for customers while competition develops.

Most retailers in the NEM operate portfolios of retail contracts across multiple regions. Consistency and predictability in the methods for setting regulated retail prices *between* regions helps retailers to manage portfolio risk. It also reduces administrative costs for these parties, which should result in lower retail prices for customers over the longer term.[12]

While customer participation in Australian retail markets is high by international standards,[13] there appears to be scope to improve customer understanding of the options available to them. Nationally consistent retail market frameworks can strengthen customer participation, enabling customers to select a retail contract that 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 objective 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 recommended method for determining regulated retail electricity prices for small customers.[14,15] The terms of reference note that jurisdictions may choose to adopt this method where regulation remains necessary. Alternatively, they can consider transferring regulatory responsibility to the AER.

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

12 This was supported by EnergyAustralia. See: EnergyAustralia, Issues Paper submission, p. 4.

13 Through 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.

14 Small customers are generally defined as a residential customer or a business customer that has an annual consumption level below 100 MWh for electricity. This threshold is set out in regulation 7 of the National Energy Retail Regulations 2010.

15 Terms of Reference, pp. 1-2.

- wholesale energy costs - includes consideration of the long run marginal cost of generation and a wholesale market based approach (ie based on forward contracts and 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 cost of delivering electricity to customers 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 current) related to relevant government policies and schemes into regulated retail prices.

The terms of reference state that the AEMC 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.

SCER has requested the AEMC have particular regard to how the wholesale energy cost component may be determined, as well as ensuring that retail electricity prices reflect the cost of supplying electricity to an individual customer.

The recommended 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 interests of consumers.

This advice is to relate to the NEM jurisdictions that retain retail price regulation. 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 consideration

There is a range of work that the AEMC is currently or has recently undertaken that has implications for the advice developed here. The most relevant of these are

summarised below. Other 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 on the state of competition in NSW for electricity and natural gas small customers. If competition was found to be effective, the Commission was asked to provide advice on the appropriate path towards removing price regulation.

As set out in the draft report, published May in 2013, the AEMC found that competition in the electricity and natural gas markets for small customers in NSW is effective, and so price regulation should be removed. The review did not comment on the current method for regulating retail electricity prices in NSW, but still provides useful background to this advice.

1.3.2 Review of 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 next pricing trends report is due to be published in December 2013, covering 1 July 2013 to 30 June 2016.

This review of retail electricity price movements does not comment on the current jurisdictional approaches to setting regulated retail prices. The work being undertaken for the current review of retail electricity price movements has provided useful background and context to this advice.

1.3.3 Proposed changes to annual network price setting arrangements rule change

The Commission commenced a rule change process in June 2013 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).

IPART's rule change request, amongst other changes, proposes to 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 has

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.

implications for our advice relating to how network prices are passed through in regulated retail prices.

1.3.4 Potential generator market power rule change

The Commission concluded a rule change process earlier in 2013 in response to a rule change request received from the Major Energy Users Ltd.[17]

In order to evaluate this rule change request, the Commission established a 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 a good approximation of the level of prices required to recover the cost of building new generation to satisfy customer demand. In determining what efficient long-term wholesale prices are the Commission also defined long run marginal cost. This analysis and definitions has implications for our consideration of how long-term wholesale energy costs can be estimated

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 distribution network pricing structures. This included recommendations relating to time of use network pricing. These recommendations have implications for our advice, on the application of time of use network pricing in regulated retail prices.

1.4 Stakeholder consultation

SCER 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.

To give interested stakeholders an appropriate opportunity to present their views on matters relevant to this advice, we published an Issues Paper on 14 June 2013 for public

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

consultation. The Commission received submissions from 15 stakeholders, including jurisdictional governments, regulators, retailers, consumer representatives and environmental groups. A full list of submissions can be found at www.aemc.gov.au. These submissions assisted the Commission in developing the analysis and recommendations contained in this report. A summary of submissions is contained in Appendix A.

Consistent with our terms of reference, we also consulted with jurisdictions and jurisdictional regulators prior to the finalisation of this report.

We have also met with jurisdictions, jurisdictional regulators and other stakeholders throughout the preparation of this advice. We appreciate the advice and evidence provided throughout this process.

Table 1.1 Advice process

Document	Purpose	Date
Issues Paper	To present the key issues identified by the Commission and set out the process for the review.	14 June 2013
Draft Report	To be circulated to jurisdictions and jurisdictional regulators for their review and comment.	August 2013
Final Report	To set out the Commission's final policy conclusions and recommendations.	27 September 2013

1.5 Way forward

The AEMC has been requested to provide this advice to SCER.[18] Jurisdictions will consider whether to apply this method in setting retail electricity prices.[19]

Retailers have raised several matters in submissions, relating to the potential implementation of this advice. We note these here, since these may be of interest to jurisdictions in considering the recommended method:

- several retailers commented that further consultation on the recommended method should be undertaken with stakeholders in order to ensure that adequate consideration has been given to stakeholder views;[20]
- several retailers commented on the need for, and role of transitional processes. For example, what would happen in those jurisdictions that are currently in the middle of regulatory price determinations;[21,22] and

18 Terms of Reference, p. 1.

19 Terms of Reference, p. 1.

20 See: AGL, Issues Paper submission, p. 4; Alinta Energy, Issues Paper submission, p. 2; Origin Energy, Issues Paper submission, p. 5.

- several retailers also considered that this method should be reviewable across time, enabling feedback on its ongoing suitability could be incorporated.[23]

1.6 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 have been 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, and the retail margin;
- chapter 6 outlines issues relating to a headroom for facilitating competition;
- chapter 7 outlines issues relating to environmental and jurisdictional scheme costs;
- chapter 8 outlines issues relating to form and timing of the regulation of regulated retail electricity prices; and
- appendix A provides a summary of the submissions to the Issues Paper.

21 See: Energy Retailers Association of Australia (ERAA), Issues Paper submission, p. 2; Momentum Energy, Issues Paper submission, p. 1; EnergyAustralia, Issues Paper submission, p. 23.

22 The Commission notes the importance of maintaining predictability and stability in the approach used for setting regulated retail prices. For example, we would not expect jurisdictions that are currently in the middle of a regulatory price determination period to change the method for setting regulated retail prices midway through the period. This is discussed in further detail in section 2.1.

23 See: ActewAGL Retail, Issues Paper submission, p. 6; and AGL, Issues Paper submission, p. 10.

2 Approach, scope, objective and principles

Summary of this chapter

Our recommended method for retail price regulation is principles based, and avoids using prescriptive methods. This reflects the differing retail market characteristics across the jurisdictions - if the advice is too specific, then it would lead to unsuitable or inflexible retail price regulation being used across jurisdictions with differing characteristics.

The overarching objective guiding our advice has been the National Electricity Objective (NEO). However, for the purposes of this advice we have also articulated an objective for retail price regulation. This is consistent with the NEO, and has been used to guide the development of our advice:

> *In promoting 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.*

This objective reflects the Commission's view that it is important that retail price regulation seeks to achieve efficient costs, while at the same time not impeding the development of competition.

Building on the above objective we have set out a number of underlying principles:

- cost efficiency;
- cost reflectivity;
- transparency;
- open and consultative process;
- predictability and stability;
- minimising the administrative burden; and
- appropriate allocation of risk.

These have been used to assess alternative methods for setting retail electricity prices and to guide the development of a recommended method.

This chapter sets out the AEMC's approach to (section 2.1), and the scope of (section 2.2) this advice. It then identifies and discusses the objective of retail price regulation

(section 2.3), as well as the principles (section 2.4) that have guided the development of this advice.

2.1 Approach

The AEMC has based our advice to SCER on the following approach:[24]

- articulate the objective for regulating retail prices;
- identify appropriate principles to guide the development of the recommended method for setting 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 method or methods for setting regulated retail prices.

The AEMC has articulated the objective for regulating retail prices in Box 2.2, with this discussed in further detail in section 2.3.

Following from this objective, the AEMC has identified principles for the setting of regulated retail prices. These aim to guide the assessment of different methods, and are discussed in further detail below in section 2.4.

The AEMC then collected information and data to enable the development of a recommended method.

This included 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 reviewed the current methods used by jurisdictional regulators in Australia.[25] Where relevant, we have also reviewed international practice for regulating retail prices.

The extent to which each of these approaches is likely to satisfy the objective and identified principles was then considered.

Finally, we set out our recommendations on the recommended method or methods for setting regulated retail prices.

Our recommended method is principles based, and avoids using prescriptive methods. This is to accommodate the differing retail market characteristics across the jurisdictions. If the advice was too precise, then it would lead to unsuitable or inflexible

24 AGL and EnergyAustralia were supportive of this approach. See: AGL, Issues Paper submission, p. 11; and EnergyAustralia, Issues Paper submission, p. 5.

25 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.

retail price regulation across jurisdictions with different characteristics.[26] This principles based approach was supported in submissions received.[27]

There have been significant developments in the retail energy markets since this advice was first proposed by COAG, as several submissions have commented on.[28] This includes the:

- decision by the South Australian Government to remove regulated retail prices from February 2013;
- announcement by the Queensland Government of its intention to remove regulated retail prices in South East Queensland by 1 July 2015;[29] and
- Commission's draft recommendation that the NSW Government remove retail price recommendation as part of its review of retail competition in NSW.[30]

These have been taken into account when developing our recommended method.

AGL was concerned that there was no discussion in the Issues Paper of the potential unintended consequences of recommending a particular price regulation method.[31] For example, what the impacts would be on markets with existing retail price regulation. The Commission considers that a principles based approach ensures that the advice will accommodate the differing retail market characteristics across jurisdictions, including that it would not impede on existing competition within markets.[32] The Commission also considers that retail price regulation should only be applied where competition is not possible, or where competition is not sufficiently developed to protect customers interests.

The Commission also notes the importance of maintaining predictability and stability in the approach used for setting regulated retail prices. Consideration of any move towards our recommended approach to regulated retail price setting should balance the advantages against the need to maintain predictability. The Commission does not consider for example, that jurisdictions that are currently in the middle of a regulatory price determination period should change the method for setting regulated retail prices

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26 This supports AGL's concern, that the Commission should acknowledge that the role of price regulation in different types of markets may be different. See: AGL, Issues Paper submission, p. 4. It also addresses Alinta's concerns regarding the significant impact of incorrect or non-reflective pricing. See: Alinta Energy, Issues Paper submission, p. 1.

27 See: ERAA, Issues Paper submission, p. 2, Momentum Energy, Issues Paper submission, p. 1; IPART, Issues Paper submission, p. 1; Lumo Energy, Issues Paper submission, p. 1.

28 See: ERAA, Issues Paper submission, p. 1; Momentum Energy, Issues Paper submission, p. 1; Alinta Energy, Issues Paper submission, p. 1; Origin Energy, Issues Paper submission, p. 4.

29 Queensland Government, *Queensland Government response to the Interdepartmental Committee on Electricity Sector Reform*, 16 June 2013.

30 AEMC, *Review of Competition in the Retail Electricity and Natural Gas Markets in New South Wales,* Draft Report, 26 May 2013.

31 See: AGL, Issues Paper submission, p. 4.

32 See: AGL, Issues Paper submission, p. 9.

midway through the period. This is consistent with our proposed principle of predictability and stability, which is discussed further in section 2.4.5.

2.2 Scope

Our scope has been framed by our terms of reference, as discussed in section 1.2. In summary, under our terms of reference, the AEMC is required to develop a method or methods for determining regulated retail electricity prices for small customers. The advice must consider the determination of each cost component within regulated retail electricity prices. Further, 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. The AEMC has also had regard to the applicability of the advice to the Northern Territory and Western Australia, where practicable. We have considered the extent to which different circumstances in these jurisdictions would require a different 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. 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;[33]
- 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;
- 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. Further some of these matters are subject to the National Energy Retail Rules and are more appropriately considered through the Commission's rule change process;
- 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;

33 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.

- assessment of the level of retail electricity competition in jurisdictions - the AEMC assesses, through a separate process, the effectiveness of retail competition in each NEM jurisdiction;[34] 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.[35,36]

Etrog Consulting commented that there may be other reasons, eg affordability concerns, that not all customers should pay the efficient costs of their electricity supply.[37] These concerns go beyond the operation and performance of the competitive market. The Commission acknowledges that affordability issues are an important matter to consider when reviewing the operation of a market. These issues are better addressed through appropriately targeted policies rather than by seeking to set a regulated price retail price in a location at a level below efficient costs.

Consequently, it is preferable to establish a market that operates free of regulatory intervention (to the greatest extent possible). The Commission considers that affordability concerns are policy questions for jurisdictional governments.

The Conservation Council of South Australia has commented that, in their opinion, the long-term interests of customers (ie the NEO, discussed below) includes sustainability matters.[38] The AEMC considers that the matters relating to sustainability are beyond the AEMC's remit, and so are not discussed in this review. These are policy matters, and so best dealt with by the Commonwealth and jurisdictional governments.

EnergyAustralia also raised the issue of solar feed-in tariffs, which it considered should be in scope, where these tariffs remain regulated.[39] This is since solar feed-in tariffs rely on some of the same inputs as the regulated electricity price. The Commission considers that these tariffs are out of scope; however, we consider that it would be appropriate for jurisdictional governments and regulators to take our recommendations into account when these tariffs are set, to the extent that the inputs or cost components are the same.

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34 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 retail energy markets.

35 The National Energy Customer Framework (NECF) has commenced in the ACT, NSW, Tasmania and South Australia. Queensland has announced that it will implement the NECF in early to mid-2014.

36 Queensland Consumers Association also commented that service quality is an important consideration for many customers. The Commission considers this issue to be out of scope as detailed here. See: Queensland Consumers Association, Issues Paper submission, p. 2.

37 See: Etrog Consulting, Issues Paper submission, p. 7.

38 See: Conservation Council of South Australia, Issues Paper submission, p. 1.

39 See: EnergyAustralia, Issues Paper submission, p. 5.

2.3 Objective

2.3.1 National Electricity Objective

The overarching objective guiding our advice has been the National Electricity Objective (NEO).[40] 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 section 1.1.1, we set out the benefits associated with having a nationally consistent and stable method for setting regulated retail prices, where competition is not feasible or is developing. In particular, a nationally consistent and stable method would provide market participants in the retail sector with increased confidence when investing. It would also give certainty, promoting efficient investment over the long term. This has the potential to lead to lower and more stable prices for customers, and so better allow the NEO to be met.

A nationally consistent and stable method will also promote competition in retail markets, which may lead to increased choice for customers in determining how their electricity is supplied. The benefits of promoting competition in retail markets, are discussed in greater detail below.

2.3.2 Objective of retail price regulation

For the purposes of this advice, we have articulated an objective for retail price regulation. This is consistent with the NEO, and has been used to guide the development of our advice.

A stable, clear and articulate objective for price regulation is important since it gives the regulator a clearly defined target, and provides 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 to how regulated prices are set.[41]

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

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40 This was supported by Etrog Consulting. See: Etrog Consulting, Issues Paper submission, p. 5.

41 ActewAGL Retail supported this, stating that regulated retail prices should be set with reference to firmly embedded regulatory principles that are not subject to change from one period to the next. See: ActewAGL Retail, Issues Paper submission, p. 6.

allowing the flexibility for a regulator to adapt their approach to changes in circumstance.

The AEMC has articulated an objective for retail electricity price regulation that is sufficiently flexible so that it can apply to both: 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.

Benefits of competition

As discussed above, the overarching objective for our advice is the NEO, and so this should be reflected in the objective of retail price regulation. Therefore, retail price regulation should seek to promote the long-term interests of customers.

The Commission considers that effective competitive markets are generally the best means of promoting customers' long-term interests. The benefits of competition include:

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

The AEMC considers that regulated prices will always be an imperfect substitute for prices determined by the competitive process of a market, and are likely to impose costs and distortions that would not otherwise be present. Specifically, since regulated businesses have better cost and market information than regulators, there is a risk that regulated prices will either be set:

- too low, deterring investment and innovation; or
- too high, to the detriment of customers.

Regulated pricing arrangements also lack the flexibility and timeliness of market prices.

As well as being concerned about price levels, customers also have an interest in factors such as reliability of supply and quality of service. Regulators are not able to easily assess what weights customers assign to these non-price elements of the product that is supplied to them, due to information asymmetries. In contrast, these factors are more easily able to be assessed by retailers themselves, since they can observe revealed customer preferences within competitive markets.

Given these benefits, regulation should only be applied where competition is not possible, or where competition is not sufficiently developed to provide these benefits.[42] Regulation aims to act as a proxy for competitive outcomes.[43]

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

Box 2.1: Retail price regulation in the European Union

In the European Union, according to the internal energy market rules, all businesses must have the possibility to freely provide services all across the European Union. Additionally, they must be able to set their own prices, reflecting the market situation.[44]

The European Regulators' Group for Electricity and Gas (ERGEG) consider that regulated prices distort the functioning of the market, defining prices that do not reflect the real needs of the market, and preventing free competition and market integration. Regulated prices maintain monopolistic situations, which leads to either underinvestment or unnecessary high prices.[45]

The European Court of Justice also clarified in its Federutility judgment[46] the criteria under which regulated prices would be compatible with Internal Energy Market legalisation. These criteria are that the measure must be: adopted in the general economic interest; be in compliance with the principle of proportionality; be clearly defined; transparent; non-discriminatory and verifiable; and guarantee equality of access for European Union energy businesses to national customers.

This view that competitive markets are the best means of promoting customers' long-term interests is consistent with the Australian Energy Market Agreement (AEMA), in which jurisdictions express their commitment to competitive retail energy markets.[47] The AEMA sets out how jurisdictions have agreed to phase out retail price regulation, where effective retail competition can be demonstrated.

42 It is important to recognise that different levels of competition may also exist within a single market over time, as it evolves and moves away from a monopoly towards a competitive market.

43 Alinta Energy commented that our proposed retail objective for retail price regulation may be better achieved through price deregulation than through regulation. This view reflects that regulation aims to proxy competition outcomes. The Commission considers that both competition and regulation should achieve this objective. See: Alinta Energy, Issues Paper submission, p. 3.

44 European Commission, *Energy: Commission asks Portugal to change its end-user price regulation scheme to ensure freedom of choice and protection for consumers*, Media release, 19 May 2011.

45 ERGEG, *End-user energy price regulation*, An ERGEG Position Paper, 18 July 2007.

46 European Union Court of Justice, Federutility and Others v Autorita per l'energia elettriica e il gas Case C-265/08, 20 April 2010

47 Clause 14.10 of the COAG Amended Australian Energy Market Agreement, July 2009.

The AEMC undertakes reviews of the effectiveness of competition in each NEM jurisdiction through a separate process.[48] These reviews are undertaken to assist governments in making decisions relating to the "retention, removal or reintroduction" of retail price regulation.[49] The AEMC is guided by a set of principles as set out in the AEMA, when undertaking these reviews.[50]

More recently, both COAG and SCER reiterated their commitment to removing regulated retail prices, where effective competition exists.[51] This was also reflected in our terms of reference for this advice, specifically that the method adopted is "consistent with removing price regulation in the future when competition is effective".[52]

Most submissions also supported removing regulated retail prices where competition is effective.[53] They cited a number of benefits that result from competition, including those identified above, such as:

- prices reflect efficient costs;[54]
- products are developed that meet customer needs;[55] and
- there is the delivery of ongoing investment to underpin customer reliability.[56]

As discussed above, one significant benefit from competition is that prices trend to efficient levels over time. There are two aspects to efficient price levels: cost efficiency, and cost reflectivity. Price regulation should aim to achieve both aspects. These are discussed below.

Cost efficiency

Price regulation should allow businesses to recover only those costs that are efficient.[57] This means that for a given cost, the business should maximise its output to customers,

48 Clause 14.11 of the COAG Amended Australian Energy Market Agreement, July 2009.

49 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.

50 Annexure 3, COAG Amended Australian Energy Market Agreement, July 2009.

51 Recommendation 8.1, *COAG Energy Market Reform - Implementation Plan*, December 2012.

52 Terms of Reference, p. 2.

53 See: ERAA, Issues Paper submission, p. 1; Simply Energy, Issues Paper submission, p. 1; Momentum Energy, Issues paper submission, p. 1; IPART, Issues Paper submission, p. 1; ActewAGL Retail, Issues Paper submission, p. 2; Lumo Energy, Issues Paper submission, p. 1; Alinta Energy, Issues Paper submission, p. 1; EnergyAustralia, Issues Paper submission, p. 4; Origin Energy, Issues Paper submission, p. 4.

54 See: ERAA, Issues Paper submission, p. 1; Simply Energy, Issues Paper submission, p. 1;

55 See: ERAA, Issues Paper submission, p. 1.

56 See: Simply Energy, Issues Paper submission, p. 1.

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

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. 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.[58]

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. Unless carefully formulated, regulation may promote lower costs and prices in the *short*-term, which may discourage retailers from entering the market. The acknowledgment of this trade-off was expressed in some submissions.[59]

An example of this trade-off is the different approaches 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. Setting costs on this basis, and not allowing some form of headroom, may not allow new entrant retailers to recover their costs, which may discourage new entry and competition over the long term, and the associated benefits this provides to customers.[60]

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.

Objective of retail price regulation

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

58 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.

59 See: Simply Energy, Issues Paper submission, p. 2; IPART, Issues Paper submission, p. 1.

60 This trade-off is less severe in a context where there is a clear and reasonable prospect of removing regulated retail prices in the near future.

Box 2.2: Objective of retail price regulation

In promoting 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 balance the long- and short-term interests of customers. The Commission considers that the weight given to these objectives is likely to be different across jurisdictions, and is ultimately a policy matter for jurisdictional governments to decide upon. Further, the weightings may evolve over time as competition develops.[61,62]

Several submissions made specific comments on the wording of the objective. AGL consider that the objective should read "in promoting the long-term interests of customers" to more strongly align it with the NEO.[63] The Commission agree with this comment, and so have reflected this change in the objective of retail price regulation.

The ACT Government consider that the second half of the objective ("facilitate the development of competition in retail electricity markets, where competition may be feasible") should not be included.[64] It considers that the implication that customers should be required to make a financial contribution to support competition, beyond efficient costs, is contradictory. The ACT Government also cite examples to support its arguments, including that the deregulated gas market in ACT is not competitive.[65]

While it is important for the development of competition that a regulated price is high enough to allow new entrants to compete, the regulated price essentially provides an upper limit on prices. Typically, competitors will price below this regulated price, and so customers in a competitive market will have a choice of market prices that are lower.

Over time, competition means retailers will find ways to reduce costs and prices below the initial efficient cost level of the incumbent. In the absence of competition, no such incentive exists. Furthermore, as set out above, the Commission considers that competition also provides a number of other benefits, which cannot be achieved under

61 IPART expressed similar sentiments in their submission, specifically a framework should "have clear objectives that balance the long and short-term interests of customers". See: IPART, Issues Paper submission, p. 1.

62 This objective was also supported by the Conservation Council of South Australia. See: Conservation Council of South Australia, Issues Paper submission, p. 1.

63 See: AGL, Issues Paper submission, p. 5.

64 See: ACT Government, Issues Paper submission, p. 1.

65 See: ACT Government, Issues Paper submission, p. 2.

regulation. Therefore, the Commission considers that this limb of the objective should remain.

Conversely, Simply Energy considered that the objective should be to solely facilitate competition, and so the regulated retail prices should not reflect efficient costs.[66] The Commission considers that one of the purposes of price regulation is to ensure that, while competition is still developing, businesses only recover those costs that are efficient. Therefore, the Commission considers that this limb of the objective should also remain.

ActewAGL Retail considered that the words "where competition may be feasible" should not be included in the objective, since this implies that there are markets where competition is not possible.[67] The Commission consider that deciding whether competition is feasible or not, is a matter for jurisdictional governments to decide on. It is beyond the scope of this advice to discuss this.

Similarly, Queensland Consumers Association consider the latter half of the objective should read "facilitate the development of effective competition in retail electricity markets where competition may be feasible and beneficial".[68] While the Commission considers that competition in general is beneficial for the long-term interests of customers, deciding upon whether there are specific circumstances in which competition may not be beneficial (eg for certain groups of customers) is a matter for jurisdictional governments to decide upon.

ActewAGL Retail also considered that it would be helpful if the AEMC indicated what is meant by the development of competition.[69] As the Commission discusses above, competitive markets free of regulation are preferable. Therefore, the facilitation of competition should refer to minimising the impediments to the development of competition, consistent with providing an appropriate degree of protection to customers in the shorter-term, while competitive pressures are still relatively limited.

Finally, EnergyAustralia consider that the objective should explicitly refer to the aim to progress to remove the regulation of retail prices.[70] The Commission considers that this is a matter to be decided by jurisdictional governments, and so should be expressed accordingly.

2.4 Principles

The above objective gives rise to a number of underlying principles. These principles are used to assess alternative methods for setting retail electricity prices and to guide the development of a method. These proposed principles are well established, and are

66 See: Simply Energy, Issues Paper submission, p. 2.

67 See: ActewAGL Retail, Issues Paper submission p. 3.

68 See: Queensland Consumers Association, Issues Paper submission, p. 2.

69 See: ActewAGL Retail, Issues Paper submission, p. 2.

70 See: EnergyAustralia, Issues Paper submission, p. 5.

consistent with regulatory best practice. In selecting these principles, we have had regard to existing jurisdictional and international principles for retail price regulation.[71]

These principles were largely supported in submissions.[72] AGL and Origin Energy were concerned that there is no explicit principle referring to the development of competition. The Commission consider that the development of competition is covered by the operation of the objective and the other principles, in particular the long-term focus on cost efficiency and reflectivity.[73]

Simply Energy did not support the principles of cost efficiency and cost reflectivity, since it does not consider that the objective of retail price regulation is to "reflect efficient costs".[74] The Commission considers that one limb of the objective is to reflect efficient costs (which these two principles take into account), and so these principles are still appropriate.

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 paid by a customer should reflect the underlying costs of supplying electricity to that customer. 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 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;

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71 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; Independent Competition and Regulatory Commission (ICRC), *Retail prices for non-contestable electricity customers - 2012-14*, December 2011; Office of Tasmanian Regulator (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.

72 See: Etrog Consulting, Issues Paper submission, p. 8; AGL, Issues Paper submission, p. 15; EnergyAustralia, Issues Paper submission, p. 6.

73 See: AGL, Issues Paper submission, p. 15; and Origin Energy, Issues Paper submission, p. 9.

74 See: Simply Energy, Issues Paper submission, p. 2.

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

2.4.3 Principle 3: Transparency

The objective, principles, method and outputs (prices) of retail price regulation should all be clear and transparent. To the extent that efficient procurement of services is not undermined, inputs into regulated retail prices should also be transparent.

A transparent method helps to facilitate predictability of approach over time, benefiting retailers and customers. Retailers would have improved confidence to contract with generators. 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, eg data and information that is used to develop regulated retail prices.[75] This will also increase retailer and customer confidence, since they will be able to see how any market changes affects 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 method for setting regulated retail prices also enables all stakeholders to assess whether the method 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. 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. Increased 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.

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75 Etrog Consulting commented that transparency also applies to data and information used in the development of regulated retail prices. See: Etrog Consulting, Issues Paper submission, p. 8.

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.[76] This decreases the risks associated with investment in these businesses, as discussed in section 1.1.1.

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 where these are the most efficient approach, which may further increase certainty in the market. Lower risks may also lead to lower costs, which may result in lower prices for customers.

Predictability and stability does not preclude changes in the regulatory and policy environment; indeed some flexibility to accommodate changes in market or external conditions is desirable.[77] 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 method associated with setting regulated prices should not impose undue regulatory or administrative costs for the regulators and key stakeholders.

This implies that methods 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.[78] This largely reflects the characteristics of retailer costs, which are subject to more frequent changes. For example, energy purchase costs are influenced by the spot market, which operates on a half hourly basis.

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76 Origin supported this sentiment in their submission to the Issues Paper. Origin consider that frequent changes in method or price level are likely to dull incentives for market entry and for investment in marginal generation. See: Origin Energy, Issues Paper submission, p. 4.

77 That is, it is not regulatory actions that should be frozen, but that, these regulatory actions should be reasonably predictable in the light of a given set of circumstances.

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

EnergyAustralia comment that this principle is appropriate, but should be considered in context. Issues with the approaches used by jurisdictional regulators have tended to drive up administrative costs more so than the length of the determination.[79] The Commission considers that this is an important consideration, and emphasises the importance of the transparency principle in this context.

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.

The Commission notes that not all customers are the same, and so some customers will have the ability to manage risks better than others.[80] As discussed above, we consider that specific, targeted policies should be implemented to assist those customers that would benefit from financial and non-financial assistance.

79 See: EnergyAustralia, Issues Paper submission, p. 6.

80 See: Etrog Consulting, Issues Paper submission, p. 8.

3 Wholesale energy costs

Summary of this chapter

The energy purchase cost allowance is one of the largest cost components in regulated retail prices. This makes the choice of method for setting this allowance one of the key decisions made by regulators. The Commission considers that the method used to estimate energy purchase costs should have the following efficiency characteristics: be forward-looking in approach; reflect, and be responsive to, the current demand/supply balance; and include a time dimension.

There are two approaches that are commonly used by regulators to estimate the energy purchase cost allowance: a long-run marginal cost (LRMC) approach;[81] or a market based approach.[82] A LRMC approach estimates a retailer's energy purchase costs based on the long-term costs 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 current prevailing market conditions.

The Commission recommends that, where feasible, energy purchase costs should be estimated using a futures market method.[83] Futures prices[84] generally produce the best estimates of future energy purchase costs, resulting in customers paying efficient costs. This is because use of data from a liquid futures market encapsulates all three efficiency characteristics outlined above.

The Commission considers that sufficient liquidity in the futures market is required in order for this method to be used by regulators. Regulators should consider liquidity in determining whether the futures prices are reliable, before adopting this method.

If the futures prices are considered to be unreliable, then the Commission considers that a LRMC approach should be used to estimate energy purchase costs. The Commission suggests that a perturbation LRMC method is most appropriate. This is because the perturbation LRMC method is the only LRMC method to meet all three efficiency characteristics outlined above.

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81 There are numerous ways to estimate an LRMC. The most common ways are: greenfields LRMC, average incremental cost method, and perturbation method.

82 This uses estimates of wholesale electricity prices - based on either modelled spot prices, data on contract prices, or a combination of both - and an associated hedging strategy, to estimate energy purchase costs.

83 The futures market method estimates wholesale electricity prices using data on contract prices obtained from the exchange-traded futures market. A hedging strategy is applied to these prices, reflecting how retailers manage their risk.

84 Futures prices are those prices that stem from contracts traded on the exchange-traded futures market.

There are several other wholesale energy cost allowances aside from the energy purchase cost allowance, which are also discussed in this chapter. These allowances comprise a much smaller proportion of the regulated retail price.

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 and jurisdictional schemes, reflecting costs retailers incur in complying with these schemes.

Sections 3.1 through 3.5 below set out the context, methods for estimating, and the Commission's recommendations in relation to the energy purchase cost allowance.

The other cost components that comprise wholesale energy costs are discussed in section 3.6, specifically:

- the inclusion of hedging or volatility costs - section 3.6.1;
- NEM market fees - section 3.6.2;
- ancillary service fees - section 3.6.3; and
- energy losses - section 3.6.4.

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 7.

3.1 Context

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

The energy purchase costs included in regulated retail prices are based on an allowance estimated by the relevant jurisdictional regulator.[85] This allowance seeks to enable the retailer to recover the efficient costs associated with the purchase of energy. Generators participating in the NEM sell all their electricity through the wholesale spot

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

market, which is operated by the Australian Energy Market Operator (AEMO).[86] Retailers can buy energy directly from the wholesale spot market.

AEMO operates the spot market to balance the demand and supply of electricity in real time. The wholesale spot market price is based on the offers, and demand of market participants, with a new spot price determined in each region of the NEM every half hour. Retailers must pay AEMO for the energy supplied to their customers, and AEMO then pays generators for the electricity they supply.

These transactions are known as "spot market trading". Retailers pay the "spot price" for the electricity their customers use.

Spot prices in the wholesale market can be highly volatile, with prices ranging between a floor of -$1,000/MWh and a ceiling of $13,100/MWh. These prices vary depending on supply and demand conditions in each half hour trading interval, eg prices are typically high on hot summer days where there is strong demand. Price changes in the spot market may not always be predictable.

Under a regulated price, retailers sell electricity to customers at a fixed price. So, spot price volatility creates significant risks for retailers. Retailers seek to manage these risks through a variety of strategies, such as:

- entering into financial contracts, where retailers and generators enter into financial relationships with each other. These provide a mechanism for retailers to lock in future prices, but do not guarantee the physical delivery of electricity. These contracts vary in length ranging from shorter-term financial derivatives (~1-3 years) to longer-term purchase agreements (~20 years); and

- investing in generation assets themselves, where the business operates both generation and retailing businesses.[87]

Over time prices for these contracts and/or agreements 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 previously there was little spare generation capacity may result in a significant decrease in prices as the market adjusts.

The energy purchase cost allowance is one of the largest cost components in regulated retail prices - approximately 30 per cent of the retail cost stack.[88] The relative size of the energy purchase cost allowance and its impacts on retailer profitability and the

86 In addition to these market generators that participate in the NEM, there are also non-market generators, whose generation is purchased entirely by either a local retailer or customer directly from the connection point.

87 This essentially involves the retailer entering into a "financial derivative" with itself for electricity.

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

prices paid by customers on regulated prices, mean that the choice of method for setting this allowance is one of the key decisions made by regulators.

3.2 Methods

There are two broad approaches that are commonly used by regulators to estimate a energy purchase cost allowance:

- a long-run marginal cost (LRMC) approach; or
- a market based approach.

A LRMC approach estimates a retailer's energy purchase costs based on the long-term costs 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.

3.2.1 Long-run marginal cost approaches

The LRMC is the cost of supplying a specific, permanent change in demand, allowing for future augmentations in supply.[89] 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. The three most common methods are:

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

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

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

In calculating the LRMC, all methods utilise demand/supply modelling in order to estimate what the least cost combination of generation will be, in order to satisfy demand. All methods to calculate LRMC also 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.[90] This was recognised by EnergyAustralia, who considers that these input assumptions should be specified in the recommended method.[91] As discussed in chapter 2, we have developed a principles based method and so do not consider this level of detail to be appropriate under this approach. However, the Commission does consider it is important that input assumptions be clearly spelt out by regulators in order to enhance transparency.

Each of these methods is discussed in greater detail below.

Average incremental cost method

The average incremental cost method represents a relatively straightforward 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.

In an average incremental cost method, generation that has already been built (ie existing generation) is reflected in the estimation. The capital costs of existing and committed generation plants have already been invested ("sunk"), and so do not influence the estimate of the LRMC. Variable costs associated with these plants are still being incurred, and so are considered. Both the capital and operating costs associated with uncommitted, new generation are considered in the estimation. The capital costs of generation will not be reflected in the estimate of LRMC unless a new generation plant is needed. The Commission considers that this is appropriate since these costs affect investment decisions.

90 In the levelised unit electricity cost approach, it is assumed that the change in demand will be met by a new generation plant.

91 See: EnergyAustralia, Issues Paper submission, pp. 8-9.

Perturbation method

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

This method develops two separate future investment profiles:

- the first is based on satisfying an existing expectation of future average annual and maximum demand; and
- the second is based on satisfying a hypothetical incremental change in demand over the same period.

Both of these future investment profiles are based on a least-cost combination of generation capacity to satisfy a future average and maximum annual demand.

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.

The perturbation method can also be used to estimate the LRMC for alternative load profiles, or for segments of the load profile.[92] Therefore the perturbation method can be used to estimate energy purchase costs for regulated residential customers within a region.[93]

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 in section 3.1.

This method is supported by Alinta Energy and Origin Energy to be used when determining the energy purchase cost allowance.[94] This is since it is a simple, transparent method that captures the theoretical costs a generator would seek to recover from supplying electricity to small retail customers. Origin Energy comment that a greenfields LRMC method reflects realities in the NEM since generation investment influences prices in the wholesale energy market, it has theoretical merit, and is less volatile over time than a market based approach.[95]

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92 If a perturbation method is used to estimate the LRMC for a particular load profile, then the increment of demand applied reflects the particular load profile that is of interest.

93 The average incremental cost method does not allow an LRMC to be calculated for a particular segment of the load profile. However, the greenfields method does.

94 See: Alinta Energy, Issues Paper submission, p. 5; Origin Energy, Issues Paper submission, p. 10.

95 See: Origin Energy, Issues Paper submission, p. 10.

EnergyAustralia support a combination of approaches being used (discussed below), but commented that their preferred LRMC approach is a greenfields method.[96] This is since it assumes that the generation plant will earn an economic return on their market value, since it takes both capital and variable costs into account.

Levelised unit electricity cost method

As discussed above, the levelised unit electricity cost method is not strictly an LRMC approach. It does not optimise the costs of generation against changes in demand. However, it does share a number of similarities with LRMC.

The Alberta Market Surveillance Administrator considers that this method can be interpreted as a "limited" case of the perturbation method.[97] 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. 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.

The levelised unit electricity cost method is relatively straightforward to compute compared to the above three LRMC methods, which involve optimising costs against demand forecasts. While it is easier to calculate, it is highly dependent on the assumptions about what type of new generation plant will be built and how much of its capacity will be used.

3.2.2 Market based approaches

A market based approach aims to simulate the operation of the wholesale energy market, which reflects the estimated energy purchase costs to be incurred by the retailer in the short-term.

There are various methods that can be used to estimate a market based wholesale cost. These typically differ based on the methods used to determine an efficient hedging strategy for a retailer. 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; and

96 See: EnergyAustralia, Issues Paper submission, p. 8.

97 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.

- futures market method – this involves the consideration of publicly available futures prices in the NEM, ie prices stemming from financial derivatives traded in the exchange-traded futures market. Since these contracts aim to "lock in" future wholesale prices, the futures prices can represent the costs a retailer would incur in buying electricity.

These inputs - modelled spot prices or futures prices - 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. The specific hedging strategy adopted by a retailer will depend on its expectations of price volatility and its appetite for risk. This requires assumptions to be made by the regulator regarding a hedging strategy.

EnergyAustralia commented that the market based approaches are contentious, and recommend that the AEMC establish guidelines on each component.[98] As discussed in chapter 2, we have developed a principles based method and so do not consider this to be appropriate.

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 built into the model. Bidding behaviour under this method could be based on a variety of assumptions, specifically:

- 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 require regulatory judgement; or
- economic theory, such as game theory – which is difficult for regulators to undertake in practice.

As discussed previously, in most cases, retailers "hedge" against the volatile prices by entering into a range of financial derivatives, eg swaps, Over the Counter (OTC) contracts, etc. The modelled spot prices cannot be directly used in an energy purchase cost allowance - a hedging strategy must be applied over the top of these modelled prices. This reflects how retailers manage their risk. The application of a hedging strategy under a market modelling method depends on the bidding assumptions and the underlying load profile, and so is also sensitive to these inputs.

98 See: EnergyAustralia, Issues Paper submission, p. 9.

Futures market method

Like the market modelling method, futures prices cannot be directly used in determining an energy purchase cost allowance - a hedging strategy must be applied to these prices, reflecting how retailers manage their risk.

However, the use of futures prices as the basis for this method means that the estimate of energy purchase costs represents the views of market participants. Futures prices stem from financial derivatives, where retailers and generators agree to a price for an amount of electricity. Retailers only enter into these contracts if they are willing to pay the specific price, for a given quantity. These prices are therefore more likely, than modelled prices, to reflect the particular circumstances in the market.

Since futures prices stem from financial derivatives, not as many underlying assumptions are required as in a market modelling method. For example, assumptions about the expected bidding behaviours of market participants in the wholesale spot market are not needed.

Futures prices are obtained from publicly available sources, and are readily observable in either derivative exchanges and/or clearing houses.

There may be a mismatch between prices in the futures market, and actual prices in the future, ie this method does not produce a perfect hedge for retailers. If this mismatch is large, then retailers may face under- or over-recovery in relation to energy purchase costs. This extent of this mismatch will depend on how much electricity retailers have purchased in advance from the futures market at the prevailing prices.

There are two factors that can undermine accuracy in futures prices:

- the liquidity of the market; and
- any externalities or market structures that create bias.

These factors are discussed further in section 3.5 below.

3.2.3 Combination of approaches

A combination of the approaches described above could be used to set an energy purchase cost allowance. There are a variety of different ways the combinations could be constructed.[99]

[99] A combination of approaches is supported by ActewAGL Retail. See: ActewAGL Retail, Issues Paper submission, p. 6.

Weighted average of approaches

A weighted average of approaches may be pursued in order to try and achieve both limbs of the retail price regulation objective (reflecting efficient costs, and facilitating competition).

For example, the regulator could estimate the energy purchase cost allowance as the weighted average of a LRMC and market based approach. IPART is currently required under its terms of reference to estimate an energy purchase cost allowance as no lower than a combination of 75 per cent LRMC, and 25 per cent market based methods.[100] We understand Queensland previously used to adopt a combination of 50 per cent LRMC, and 50 per cent market based methods.

Notionally, the ratio could reflect a retailer's portfolio, that is with:

- the LRMC being a proxy for the cost of the generation facilities the retailer owns or that are covered by a long-term purchase agreement; and
- the estimate of wholesale prices under prevailing market conditions reflecting the short-term contracts the retailer has entered into.

The AEMC considers that this does not appear to be the rationale used for developing ratios in those jurisdictions that have adopted a weighted average.

The ratios to be used in the weighted average are ultimately arbitrary and are unlikely to reflect the split in the portfolio for a retailer going forward due to changes in the wholesale market potentially changing the weightings.

Higher of LRMC or market based approaches

The higher of LRMC or market prices may be used to set the energy purchase cost. For example, this was the approach that was previously used in NSW.

The rationale for this is that, as explained above, market prices are either at levels above or below LRMC at any point in time. If the energy purchase cost allowance is based solely on LRMC, and market prices are significantly higher at any one point in time, then a new entrant retailer may be discouraged from entering.

Retailers supported this approach in submissions to the issues paper.[101] This is for a variety of reasons, including:

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100 NSW Minister for Resources and Energy, *Terms of Reference for an investigation and report by the Independent Pricing and Regulatory Tribunal (IPART) on regulated retail tariffs and regulated retail charges to apply between 1 July 2013 and 30 June 2016 under Division 5 of Part 4 of the Electricity Supply Act 1995,* 27 September 2012.

101 See: ERAA, Issues Paper submission, p. 2; Simply Energy, Issues Paper submission, p. 3; Momentum Energy, Issues Paper submission, p. 2; AGL, Issues Paper submission, p. 5; EnergyAustralia, Issues Paper submission, p. 7.

- that this ensures that the regulated retail price includes room for competition to develop, ie a form of headroom;[102]

- including higher prices minimises the risk that regulators will have to redetermine the energy purchase cost allowance in order to account for increased prices or uncertainty regarding environmental policies;[103] and

- since it reflects measures of the LRMC, it ensures that adequate investment in new generation capacity and security of supply for customers is maintained.[104]

The Commission considers that the higher of LRMC or market prices is not an appropriate method to be used in setting energy purchase costs, because:

- If there is to be headroom included to facilitate competition, then this should be considered separately. Issues around including an allowance to promote competition in the regulated price are discussed in more detail in chapter 6.

- Annual reviews of energy purchase cost allowances also minimise the risk that actual prices may be higher, or to mitigate uncertainty from environment policies. These are discussed in more detail in chapter 8.

- If there are concerns about adequate investment in new generation capacity and security of supply, then a "pure" LRMC method would better address these concerns. Further, a well-functioning futures market would also deliver this result.

- This approach is biased to produce a result that is higher than the energy purchase cost allowance of an efficient retailer, and so is likely to result in customers paying a price higher than one reflecting efficient costs.

Incentives and energy purchase costs

An incentive based energy purchase cost allowance could also be developed. This would allow retailers to only recover a certain proportion of energy purchase costs. This reflects that retailers have some control over their energy purchase costs - if costs are largely uncontrollable, then there are little economic benefits to be gained from this approach. The level of control that retailers have over their energy purchase costs is also related to the level of risk they are willing to bear. For example, retailers may be unable to enter into contracts to buy large volumes of electricity at a given price.

There are several options for how this could be implemented; however, the AEMC considers that there are two likely options:[105]

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102 See: Simply Energy, Issues Paper submission p. 3; AGL, Issues Paper submission, p. 16; EnergyAustralia, Issues Paper submission, p. 7.

103 See: Simply Energy, Issues Paper submission, p. 3.

104 See: Momentum Energy, Issues Paper submission, p. 2; ActewAGL Retail, Issues Paper submission, p. 5; AGL, Issues Paper submission, p. 26; AGL, Issues Paper submission, p. 17; EnergyAustralia, Issues Paper submission, p. 7.

- the majority of the energy purchase cost allowance could be based on costs actually incurred in the previous year, with a small amount being fixed at a long-term efficient level; or

- only partial recovery of the energy purchase cost could be allowed.

In relation to the former option, to the extent that retailers have lower energy purchase costs than those included in the allowance, then retailers would be allowed to keep this difference. If energy purchase costs were higher, then retailers would be incentivised to structure efficient contract portfolios, since not all of the ex post allowance would be retained.

Similar incentives are placed on retailers under the second option, since not all of the allowance would be retained.

The AEMC considers that allowances should be set on an ex ante basis, since this provides incentives for retailers to manage their energy purchase costs. The AEMC considers that combining the above arrangements with an ex ante approach would only weaken the incentives that retailers have to currently effectively manage their energy purchase costs.[106]

3.3 Assessment

This section assesses the different approaches to estimating energy purchase costs, against the principles discussed in chapter 2. For the reasons set out in the previous section the Commission does not consider a combination of approaches is appropriate for estimating energy purchase costs. Therefore, the discussion in this section is confined to the stand-alone approaches, as described in sections 3.2.1 to 3.2.2.

3.3.1 Cost efficiency and reflectivity

Calculating the energy purchase cost allowance involves estimating the energy purchase cost of an efficient retailer. Since this involves forecasting future energy purchase costs it is impossible to have a perfect method. In practice, the most cost efficient method is the one that provides the best, ie least biased, estimate of these future costs.

A cost efficient method should have the following characteristics:

- be forward-looking in approach, reflecting that the allowance is estimating the *future* costs of purchasing electricity;

105 Similar analogies can be drawn with the pass-through of pension deficits, as applied in the United Kingdom. These have similar attributes to wholesale energy costs: large for some companies, volatile, and beyond the control of management. See: Competition Commission, *Bristol Water plc: A reference under section 12(3)(a) of the Water Industry Act 1991*, Report, 4 August 2010.

106 This ex ante approach does place risks on retailers, for example, where there are sharp movements in wholesale costs but retailer prices are relatively "sticky". The implications for this, and the links with annual reviews, are discussed in further detail in chapter 8.

- reflect, and be responsive to, the current demand/supply balance, reflecting any current excess capacity in the wholesale market; and
- include a time dimension, reflecting that retailers hedge risks across a period of time.

These characteristics are consistent with our objective and principles, as discussed in chapter 2. They also reflect that the allowance seeks to recover a retailer's future costs of purchasing energy. We refer to these as the "cost efficiency characteristics".

We assess the different methods for estimating energy purchase costs against these characteristics in the below sections.

Long-run marginal cost methods

LRMC is a long-run concept, which takes into account that generators may expand capacity in order to meet changes in demand. Since LRMC methods are intended to reflect long-term efficient costs, all methods can be considered to be forward-looking in approach.

However, not all methods reflect, and are responsive to, the current demand/supply balance, nor include a time dimension. The different LRMC methods are assessed against the latter two characteristics below.

Greenfields method

The greenfields method ignores any existing generation and so does not reflect the current demand/supply balance.

Further, the greenfields method optimises generation in the market reflecting up-to-date costs. As a result of this cost assumption it is likely to overstate LRMC as a measure of energy purchase costs and may lead to a regulated price being set too high. Some respondents indicated that the higher LRMC estimates produced under the greenfields method provides a mechanism to facilitate competition. However, the Commission considers that headroom to facilitate competition should be specifically and deliberately set, rather than being the outcome of the method selected for setting energy purchase costs.

Average incremental cost method

In contrast with the greenfields method, the average incremental cost method assumes that existing generation infrastructure has already been built, and so the capital costs associated with this infrastructure should be considered. This method therefore reflects

the current demand/supply balance, and so is generally considered as producing an efficient estimate of LRMC.[107]

While the average incremental cost method can be considered to be cost efficient, this appears to be largely true when demand is increasing. If there is declining demand, then the average incremental cost method can produce unreliable results. This is because the average incremental cost is estimated by dividing the present value of the change in the total cost of generation by the present value of the demand. If demand growth is small or negative, it can lead to inaccurate results or significant movements in the LRMC year on year.

Perturbation method

Like the average incremental cost method, the perturbation method also takes existing infrastructure into account. It therefore reflects the current demand/supply balance, and so is also generally considered as producing an efficient estimate of LRMC.[108]

The perturbation method uses a much longer time period - typically 20 years - making it less sensitive to assumptions about short-term demand levels.[109] This also means that the perturbation method includes a time dimension, making it the only LRMC method that meets all three of the cost efficiency characteristics outlined above.

Levelised unit cost method

The levelised unit cost may represent the "highest cost" solution, and so may not always be efficient.[110] For example, a lower cost method could be utilised to meet demand involving a combination of existing and new generation. 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 always be economically efficient, since some of the existing generation capacity could be used to meet part of the increase in demand.

Interactions with the LRET

The perturbation method is the LRMC method that produces the most useful insights on the likely changes in investment opportunities given small changes in demand. That is, it best represents the current demand/supply balance in the market. This is since it takes account interactions between spot prices and Renewable Energy Target certificates, which can influence planned renewable investments. In contrast, the

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107 See: NERA Economic Consulting, *Estimating Long Run Marginal Cost in the National Electricity Market: A paper for the AEMC,* 19 December 2011.

108 See: NERA Economic Consulting, *Estimating Long Run Marginal Cost in the National Electricity Market: A paper for the AEMC,* 19 December 2011.

109 Although, different demand growth assumptions will produce different LRMCs.

110 The "chosen" generator may not always be high cost. However, since it assumes that generation is only met by one generator it is unlikely to be "low" cost.

average incremental cost and greenfields methods are influenced by other factors, and so are less likely to provide useful insights on these matters.

As all methods require assumptions to be made about the operating and capital costs of generators in the NEM, all LRMC methods are sensitive to assumptions made about the operation of the LRET and this can result in cost allowances that differ from the efficient level.

Market based methods

In contrast to the LRMC methods, market based approaches seek to reflect the short-term costs for retailers associated with purchasing electricity from generators.

Market modelling method

Market modelling requires the modeller to make a similar set of assumptions to the LRMC methods. It also requires the modeller to estimate the operating and capital costs for generators, as well as make assumptions in regard to the level of demand at a particular point in time. Therefore, this method reflects the current demand/supply balance. However, this method does not include a time dimension.

The outcomes of the market modelling are in part the product of equations that exist within the proprietary model used to estimate the energy purchase costs. It is impossible to determine the extent of any bias that may be introduced by these models. It is therefore unlikely that the results of these models will be particularly reliable.

Futures market method

A liquid well-functioning futures market is likely to be the least-biased estimator of future energy purchase costs. This is because the many participants in the market bring a diversity of views, resulting in an unbiased estimate of the future wholesale market based on information available at that point in time. These views reflect what market participants think will occur in the future. This method is therefore forward-looking, reflects the current demand/supply balance and includes a time dimension. Therefore, use of data from a liquid futures market also encapsulates all three of the cost efficiency characteristics outlined above.

In order to use data from a liquid futures market, the regulator must make a number of underlying assumptions. This includes assumptions on the profile of future prices that will make up the energy purchase cost of the retailer, ie the retailer's hedging strategy. This introduces some uncertainty into the calculation of the energy purchase cost. However, provided the regulator makes best efforts to produce a profile that would be adopted by the standard retailer, this should still produce reliable estimates.

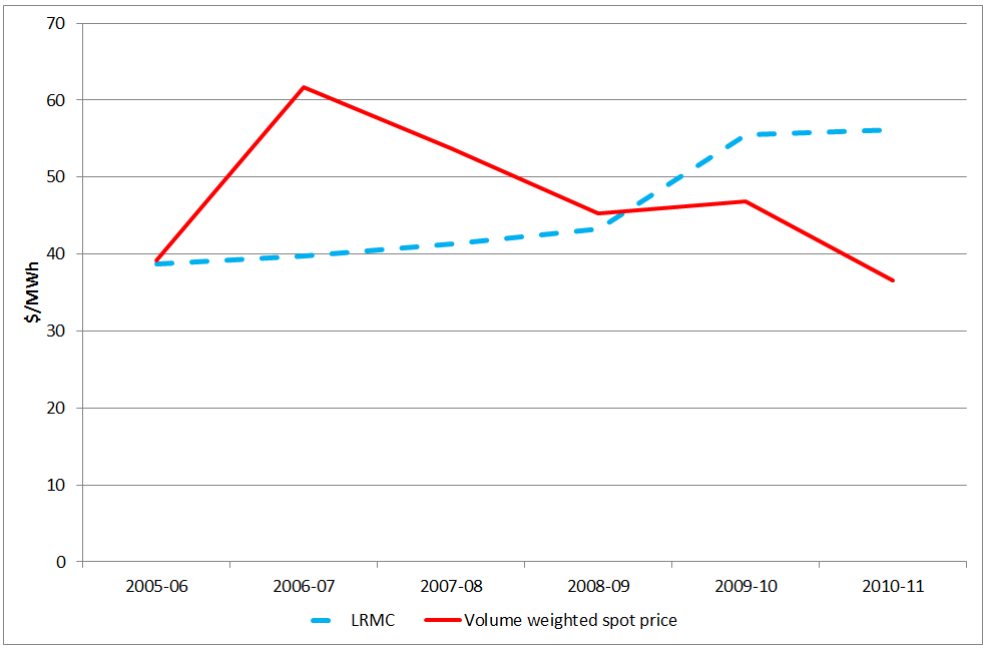
Long-run marginal cost and market based methods

Long-run and short-run

The AEMC recognises that prevailing wholesale market (spot and contract) prices will not always correspond with estimates of LRMC. At any point in time, variations between LRMC and contract prices reflect the supply/demand balance in the market - at some points spot prices are above LRMC and at some points they are below. In the long-term, LRMC should approximate wholesale prices, since LRMC is a long-term estimate of the competitive level of wholesale energy prices.

Figure 3.1 shows the LRMC (on a perturbation basis) and the weighted average spot price, across time for the NEM. This can represent the trade-off for regulators between achieving low short-term prices, and supporting the interests of customer in the long term. The low short-term prices can be represented by the spot prices in the wholesale energy market, whereas the long-term prices can be represented by the LRMC.

Figure 3.1 LRMC and Spot Prices for the National Electricity Market



Source: NERA Economic Consulting, *Benchmarking NEM Wholesale Prices Against Estimates of Long Run Marginal Cost: A Report for the AEMC*, 12 April 2012, p. 16.

Given this relationship between LRMC and market prices, the setting of the energy purchase cost allowance may have implications for retail investment incentives. In the short-term, if the energy purchase cost allowance of regulated retail prices is based solely on LRMC, and actual market prices are significantly higher, then a new entrant retailer may be discouraged from entering until after the market prices have returned to a level closer to LRMC.

However, retail investment decisions are typically based on long-term considerations of the expected revenue and costs that a business may face. Investment decisions are

also influenced by the level of risk that may exist in the market. Provided that the method for calculating the energy purchase cost is consistent over time (ie is predictable and stable), then efficient retail investment decisions should still occur.

Assumptions

Provided that the underlying assumptions used in the different energy purchase cost approaches are all accurate, then the different methods should all reflect the efficient costs incurred by the retailer in providing that service to the customer. However, as mentioned above, there are a large number of assumptions that are used as inputs into both the LRMC and market modelling approaches. To the extent that these assumptions are not accurate, or will not reflect outturn observations, these methods will have reduced cost efficiency.

While a futures market method does require some assumptions, it is largely based on futures prices. Futures prices represent the views of multiple market participants, and so reflect the energy purchase costs incurred by a retailer. Therefore, futures prices can be considered to be more cost reflective than either the LRMC or market modelling methods. These market participant views should also produce more reliable results. Further, a futures market method promotes financial viability of retailers, since it is these contracts that retailers and generators enter into, and so which form the basis of expected revenue.

3.3.2 Transparency

The LRMC and market modelling methods are not directly observable. In addition, they may be considered "black box" approaches, since the mechanisms of the calculation are not evident.

As discussed above, LRMC methods are based on economic theory, and involve a number of assumptions. This is likely to reduce the transparency of this approach. Interested stakeholders, including customers, will not be easily able to understand how changes in the underlying assumptions impact the output prices. The complexity of the method determines how opaque a method it is.

A market modelling approach also has similar transparency limitations. Market modelling requires a large number of assumptions, including on: demand, fuel costs, capital costs, carbon costs etc. This also reduces the transparency associated with this approach.

EnergyAustralia considers that this advice should develop a modelling approach, which retailers can replicate prices using their own in-house models, promoting transparency.[111] The Commission considers that if modelling was to be utilised this would be ideal. However, a regulator would have to weigh up the costs of developing a model, against the benefits transparency provides. The Commission also considers

111 See: EnergyAustralia, Issues Paper submission, p. 12.

that in the absence of the full model being made publicly available, methods could be more clearly specified by regulators, eg set out in a technical paper.[112]

In contrast to the methods discussed above, futures prices are publicly available and so can be readily observed by interested stakeholders including customers in either derivatives exchanges and/or clearing houses. Any method based on futures prices should assume that retailers have a layered hedge cover over the short, medium and longer term.[113] While the assumptions surrounding the hedging strategy may be considered to be derived in a "black box", the regulator can publish assumed hedging strategies to further enhance transparency.

One form of financial derivative is an over the counter (OTC) contract, which is struck bilaterally between two parties. Since these are entered into bilaterally, the volumes and prices of these are not transparent or observable. Since these can potentially form a large component of a retailer's portfolio, this may reduce the reliability of futures prices. It would be expected if this was significant it would be reflected in the liquidity of the futures market. While the private nature of these contracts mean they are not utilised when calculating the energy purchase cost the transparent approach of the futures does provide retailers with the opportunity to reveal whether OTC contracts are producing different outcomes.

3.3.3 Predictability and stability

The greenfields method produces the most stable outcomes over time, although these estimates are likely to be above the true energy purchase cost. However, even the greenfields method will vary slightly from year to year as the input cost and demand assumptions are updated.

Other LRMC methods are more volatile. The perturbation and average incremental cost methods are more likely to change from year to year, as the cost and demand assumptions are updated, due to the estimation calculations used. However, while these estimates may change over time, these changes should reflect efficient "signals" regarding the level of investment needed in the market.

The futures market is likely to be relatively consistent over time, although it will adjust to reflect the latest information available in regards to demand, supply expectations and policy settings.

Market modelling is likely to be the most volatile of the methods across time, as assumptions about costs, demand and trading portfolios are updated.

There is a relationship between predictability and transparency. Given the opaque nature of all methods except the futures market method, that is the one which participants have the best chance of anticipating.

112 Although we consider that this is likely more applicable to the estimation of LRMC.

113 See: Alinta Energy, Issues Paper submission, p. 4.

The Commission considers that consistency of approach in estimating energy purchase costs over time is important. Therefore, regulators should weigh up the benefits that would be achieved from having a method that produces cost efficient outcomes, against the costs of reduced consistency that would result from adopting an approach that is different to current practice.

3.3.4 Minimising the administrative burden

Both the LRMC and a market modelling methods require a large number of assumptions, which imposes administrative burden on regulators. In contrast, the futures market method is more straightforward, reducing administrative burden for regulators.

The different LRMC methods also have a variety of administrative burdens. The greenfields and average incremental cost methods are relatively simple and quick to compute; whereas the perturbation approach is more computationally complex. This has flow on consequences for the regulator, which may or may not flow to customers.

Regulators typically engage consultants to estimate the energy purchase cost allowance. If more complex, and detailed approaches are required to be estimated by consultants (eg perturbation LRMC, market modelling), costs will rise.

3.3.5 Appropriate allocation of risk

A futures market method will reflect costs that retailers incur in the market, and so aligns with how retailers currently manage their risk. This also promotes the appropriate allocation of risk.

There will be a mismatch between prices in the futures market, and actual future prices, ie this method does not produce a perfect hedge for retailers. This mismatch does create some risk for retailers. However, this risk is managed everyday by retailers in the competitive market.

In contrast, mismatch risks that occur from assumptions in the LRMC or market modelling approach being accurate are likely to be more significant. This may directly affect customers when there is insufficient competition to force the price down to its efficient level.

3.4 Commission's recommendations

Based on the above assessment of the different methods against the principles, the Commission considers that energy purchase costs should be estimated via a futures market method, where feasible.

Regulators should assess quantitative liquidity factors in determining whether the futures market for wholesale energy is sufficiently liquid (see section 3.5 below). If these quantitative assessments indicate that there may not be strong liquidity in the

market, this should also be balanced against qualitative information gained from market participants. This assessment will require some regulatory judgement, and require regulators to determine whether or not futures prices will be reliable, and be a good representation of efficient costs.

Regulators should also consider whether there are any biases in the market that may mean that futures prices are not a reliable representation of future energy purchase costs. In other words, strong liquidity is a sufficient but not necessary condition for the use of futures prices.

Where the futures prices are deemed to be unreliable, and so a futures market method is not feasible, an alternative, cost-based method should be used. The Commission considers that a market modelling method is unlikely to produce a reliable estimate of a retailer's future energy purchase costs. This is because this method primarily provides an estimate of the costs at the *current* point in time - there is no time dimension included. Retailer's hedge against the volatility in the spot market by entering into long-term contracts, and the market modelling method does not reflect this.

Where the futures method is not appropriate, the Commission considers that a LRMC method should be used.

The Commission suggests that a perturbation LRMC method is preferable. Of the various LRMC methods, this is the most cost efficient and reflective method as set out above. It is forward-looking, reflects the current demand/supply balance, and includes a time dimension.

The Commission considers that there may be limitations in applying a futures market method in some jurisdictions in Australia. For example, in Western Australia where there is a capacity market, and in the Northern Territory where wholesale contracts are typically private, bilateral contracts. In these markets a LRMC (cost-based) method is more appropriate.

The Commission considers that regulators should use a consistent method for estimating energy purchase costs across time. Consistency over time provides stability and predictability for both retailers and customers. Regulators switching between methods introduces uncertainty, and undermines efficient retail investment. This was emphasised by retailers, particularly in the case of market modelling, where predictability is required in order to address regulatory risk and uncertainty.[114] Further, confidence in the regulatory and policy environment reduces risks, leading to lower costs for customers.

Therefore, regulators should weigh up the benefits that would be achieved from having a method that produces cost efficient outcomes, against the costs of reduced consistency that would result from adopting an approach that is different to current practice. Regulators should clearly, and transparently, set out the rationale for a particular energy purchase cost method being used. For example, if the liquidity of the

futures market has changed such that it is no longer suitable to use as an estimate of energy purchase costs. Where this is the case the regulator should clearly set out the basis on which it made that decision, and the information that it relied upon.

3.5 Liquidity and structural biases

As discussed above in section 3.2.2, two factors can potentially undermine the accuracy of futures prices: a lack of liquidity; and any market structures that may create bias. Regulators should assess the level of liquidity in the futures market, before using a method that relies upon these prices. This will help the regulator determine whether the futures prices may be unreliable, and so should not be used to estimate energy purchase costs.

The liquidity of the market is important. Liquidity is the ability to sell and/or buy a contract without causing a significant movement in price. If there is limited publicly available information regarding contract prices and volumes of trade in the futures market, this may reflect limited liquidity in the market. As the time horizon increases there will be less information available in the market, and so liquidity will decline the further forward futures prices are set.

Assessment of liquidity is a well-established practice in financial markets, such as stock exchanges.[115] Consideration of liquidity also may occur in energy markets. For example, Ofgem monitors liquidity in the Great Britain power market.[116]

The AER has also previously considered the theoretical issue of market liquidity in the wholesale spot market. The AER defines liquidity in electricity financial markets as the ability of participants to transact a standard order within a reasonable timeframe to manage their load and price risk, using reliable quoted prices that are resilient to large orders, and with sufficient market participants and trading volumes to ensure low transaction costs.[117]

The Commission notes that regulators currently assess liquidity when deciding how to estimate the energy purchase cost allowance. Typically, regulators (or their consultants) look at the volumes traded through the futures market. Regulators also consider qualitative information gained through retailer submissions.

The liquidity in futures 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 may result in less liquidity in futures markets, since vertically integrated businesses have a lower reliance on these markets to hedge

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114 See: ActewAGL Retail, Issues Paper submission, p. 6.

115 For example, see: Chordia, Tarun; Sarkar, Asani; Subrahmanyam, Avandihar, "An Empirical Analysis of Stock and Bond Market Liquidity", Staff Report, Federal Reserve Bank of New York, 2003, No. 164; and Fleming, Michael, "Measuring treasury market liquidity", Staff Report, Federal Reserve Bank of New York, 2010, No. 133.

116 Ofgem, *GB wholesale electricity market liquidity: summer 2011 assessment*, 22 June 2011.

117 AER, *State of the Energy Market report*, 2009, p. 103.

against their risks in the spot market. To the extent that their generation capacity and retail load match, vertically integrated retailers do not necessarily need to separately hedge to reduce their exposure to a volatile spot market.

Any externalities or market structures that create bias can also undermine accuracy in futures prices. This includes uncertainty about future government environmental policies, eg carbon price, which may reduce the level of trading in the market and/or the length of the contracts that are traded. There may also be subsidies present in the market that distort prices.

The Commission considers that regulators should quantitatively consider the level of liquidity in the futures market - using factors such as those set out in Box 3.1 below. These factors may be broader than those currently considered by regulators. While such factors can be defined there are no definitive tests available and so a degree of judgement will be necessary. Regulators may also take qualitative factors (such as those set out above) into account when considering whether or not futures prices will be reliable estimates or not.

The AEMC have developed the following liquidity factors to be considered by regulators in assessing the likely reliability of futures prices for the purposes of regulated retail price setting. These are detailed below.

Box 3.1: Liquidity factors

The following liquidity factors could be considered by regulators:

- high volumes in standard products:
  - aggregate churn: volumes traded across all products, divided by physical consumption;
  - bid-offer spreads for a range of standard products
- the availability of key longer term dated products and/or financial derivatives, eg volume of trade along the futures curve;
- meeting independent suppliers' and others' wholesale requirements:
  - number of counterparties active in the market providing hedging offers to small/independent suppliers;
  - participation by small/independent market participants on trading places; and
- qualitative information gained from submissions.

The following factors should also be considered by regulators:

- consider whether there are any government policies outside the market that may be distorting outcomes.

3.6 Other wholesale cost components

There are other wholesale energy cost components that regulators sometimes include, specifically:

- hedging cost or volatility cost – discussed below in section 3.6.1;
- NEM market fees - discussed below in section 3.6.2;
- ancillary service fees - discussed below in section 3.6.3; and
- energy losses - discussed below in section 3.6.4.

3.6.1 Hedging cost or volatility cost

Regulators adopt a variety of approaches to estimating energy purchase costs. Most regulators, typically, use a market based approach based on futures prices.

Depending on the particular approach used, there are two potential costs that may not be taken into account, specifically:

- hedging costs – these refer to incidental costs that retailers face in entering into futures contracts. For example, this includes administrative costs such as registering with a financial exchange in order to enter into hedging contracts; and
- volatility or risk costs – the volatility of regulated load means that retailers are not able to perfectly manage variations in the expected cost of purchasing load through contract portfolio. Retailers may need additional working capital to cover the residual risk associated with the portfolio.

Assessment

As set out in section 2.4, this method has established a series of principles that should be followed by regulators in setting regulated retail prices. The Commission has not prescriptively set out a method that should be undertaken to measure energy purchase costs. Instead, the Commission has recommended that energy purchase costs should be based on futures prices. There are a number of methods that are available to do so. For example, ICRC, IPART and QCA have all adopted different approaches to estimating energy purchase costs based on futures prices, some of which capture one or both of these costs.

Since the Commission has not been prescriptive in its recommended method, it may be the case that the method selected by the regulator does not include one of these costs listed above.

Commission's recommendations

As these represent efficient costs for a prudent retailer to incur, the AEMC proposes that regulators include allowances relating to hedging or risk costs in the energy purchase cost allowance, provided that the inclusion of these costs does not result in double counting.

Where not already provided for or included in the allowed costs, the costs should be calculated and discussed in a transparent manner in the regulator's determination.

3.6.2 NEM market fees

NEM market fees are charged to retailers in order to recover the costs of AEMO operating the market. These comprise a very small component of wholesale energy costs – less than one per cent of a total retail electricity price.[118]

Regulators calculate these based on the budgeted revenue requirements of AEMO. Each year AEMO publishes its budget for the upcoming financial year, which provides detailed costs that are charged to market participants in relating to its functions as market system operator.

Assessment

These requirements, and so the associated fees, have been fairly stable across time. The fees are relatively easy to predict. Regulators calculate these estimated costs by reviewing past costs and escalating them for budgeted changes.

The AEMC considers that calculating NEM market fees based on the budgeted revenue requirements of AEMO promotes cost efficiency since the allowed costs would be based on the costs expected to be incurred. Further, it also promotes transparency since AEMO's budget is publicly available to any interested stakeholder. This approach was supported by AGL and EnergyAustralia in their submissions to the Issues Paper.[119]

Commission's recommendations

The AEMC considers that the best method to estimate NEM market fees as a cost component in regulated retail prices is a method based on the budgeted revenue requirements of AEMO.

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

119 See: AGL, Issues Paper submission, p. 21; EnergyAustralia, Issues Paper submission, p. 1.

3.6.3 Ancillary service fees

Ancillary service fees relate to ancillary services purchased by AEMO to ensure that the power system remains in a secure state. These comprise a very small component of wholesale energy costs – approximately one per cent.[120]

These charges are more difficult to estimate than NEM market fees, since there is no obvious basis on which to forecast costs. Ancillary services fees are sourced on a competitive basis, and so it is more difficult to predict what will be the prevailing market price in a given year. Despite this, we understand that these charges are relatively constant over time. However, there is still the potential for these to change significantly from one year to another.

Assessment

Jurisdictions typically base these costs on average, historical ancillary service costs in the NEM. These are usually updated annually, using a rolling average.

This approach was supported by AGL in its submission to the Issues Paper.[121] EnergyAustralia preferred that ancillary service fees would be based on the previous year's costs instead of a rolling average, thus allowing real pass throughs with a one year lag.[122] We consider that the rolling average approach is more appropriate since it will smooth any shocks that may occur in the prices, resulting in a smoother price path for customers.

Commission's recommendations

The AEMC considers that the best way to estimate ancillary service fees is to use average, historical ancillary service costs in the NEM, with these updated annually. This is a transparent approach, and minimises administrative costs to the regulator. Further, it results in broadly cost efficient costs in the absence of dramatic changes in ancillary service costs.

3.6.4 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 adjust wholesale energy costs to account for this difference between the volumes bought and sold.

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

121 AGL, Issues Paper submission, p. 21.

122 See: EnergyAustralia, Issues Paper submission, p. 12.

AEMO and the AER publish and approve loss factors, which apply to the distribution and transmission networks. These percentage loss factors are applied to the wholesale energy cost component in order to "scale" the amount of energy that retailers buy in order to take account of the losses that occur. The loss factors are applied to the total wholesale energy cost component, comprising: energy purchase costs; NEM fees; ancillary service fees; and jurisdictional energy costs. This gives a loss allowance in $/MWh.

Assessment

This current approach promotes transparency, since it is derived from publicly available data. It also promotes cost efficiency and reflectivity, since it reflects the costs that retailers incur at settlement.

This approach was supported by AGL and EnergyAustralia in their submissions to the issues paper.[123]

Commission's recommendations

The AEMC considers the best method to estimate energy losses is to apply published loss factors, as approved by AEMO and the AER, to the energy purchase cost allowance, NEM fees, ancillary service fees and jurisdictional energy costs to determine a loss allowance in $/MWh.

123 See: AGL, Issues Paper submission, p. 21; and EnergyAustralia, Issues Paper submission, p. 13.

4 Network costs

Summary of this chapter

Jurisdictional regulators do not have a formal role in setting the network cost component when setting regulated retail prices.

Therefore, the Commission considers that network charges should be reflected in regulated retail prices. The network cost component should reflect the same structure and shape as the network charge set by the distribution business. If a network business has set time of use charges, then a regulated price should be developed that is reflective of these time of use network charges.

In order for these time of use network tariffs to be efficient, and result in appropriate cost signals, the Commission also notes the recommendations made in the Power of choice review. These included modifying the NER distribution pricing principles to provide better guidance for setting efficient time of use network charges.

This chapter sets out issues relating to the network cost component of the regulated retail electricity price. In particular it focuses on the pass through of time of use network prices.

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, which are recovered from all customers through retail electricity prices.

The revenues that regulated distribution and transmission 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.[124] Distribution businesses then set prices to recover their allowed revenue, consistent with NER requirements.[125] The AER approves these annual prices based on an assessment of whether the distribution business has complied with its obligations under the rules.[126] Transmission businesses are only required to have their pricing methodology approved by the AER, but are not required to seek approval of their annual prices.[127]

Consistent with our terms of reference, in considering the network cost component of regulated retail electricity prices, the Commission has focussed on how network prices

124 In Western Australia and the Northern Territory, jurisdictional regulators rather than the AER determine the revenue network businesses can recover through their prices.

125 Distribution network prices include costs associated with jurisdictional feed-in tariffs.

126 NER clause 6.18.2(a).

127 NER clause 6A.10.1(a).

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.

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 include the total network prices that have been set by the distribution business.

These prices, as determined by network businesses, may include flexible pricing options. These are otherwise known as time of use prices, which apply a different price to different times of the day. Time of use prices may better reflect the costs to networks of supplying and transporting energy to customers, and signal these costs to customers.

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 of revenue for retailers. For example, the NSW review of competition found that the peak, shoulder and off-peak periods adopted by retailers in each network area are based on the periods underpinning Ausgrid, Endeavour Energy and Essential Energy's network time of use charges.[128]

The Power of choice review recommended the gradual phase in of efficient and time of use pricing options for residential and small business customers.[129] In order to facilitate this phase in, Power of choice set out how the regulatory arrangements for standing offers in each jurisdiction would need to make available both: a standing offer including a flat network tariff component, and one which includes a time of use network tariff component.[130]

Setting two standard offers would require jurisdictional regulators to set both flat and flexible regulated retail electricity tariffs, where retail price regulation remains and a price control form of regulation is used.[131] Form of regulation is discussed further in chapter 8. Small customers would be able to remain on their existing (flat) tariff, but have the option to move to a time of use tariff.[132]

In order to ensure that the time of use network charges are cost reflective, the Power of choice review also made recommendations requiring the setting of network tariffs to be guided by pricing principles. The recommended principles are modifications to the

128 AEMC, *Review of Competition in the Retail Electricity and Natural Gas Markets in New South Wales,* Draft Report, 23 May 2013.

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

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

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

132 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.

existing NER distribution pricing principles, and focus on tightening the principles for, and consultation in respect of, network tariffs. These recommendations are summarised in Box 4.1 below.

Box 4.1: Power of choice recommendations on strengthening pricing principles

Distribution pricing rules are set out in Part I, Chapter 6 of the NER. Specifically, NER clause 6.18.5 sets out the pricing principles that guide the development of distribution charges by DNSPs.

The Power of choice review proposed modifications to these pricing principles.[133] In summary, these principles consider that the LRMC of the network should form the basis for setting efficient network tariffs. It is proposed that this requirement is strengthened in the rules, and provide greater definition about how the LRMC of network services should be signalled to customers.

The pricing principles should also recognise the interaction of peak demand and available network capacity in different parts of the network that drives network costs, and that some level of geographic variation in pricing should be allowed.[134]

The modified principles would reflect the following:

- network tariffs should be set on the basis of LRMC;[135]
- network tariffs should be based on demand at times of greatest utilisation of the distribution network, and for which investment is most likely to be contemplated;
- to the extent practical, network tariffs should reflect current and forecast constraints within the distribution network;
- the development of network tariff structures should take into account likely impacts on customers; and
- any network tariff structure proposed should have regard to relevant consultation requirements in the rules.

An additional requirement would also require the AER to develop and publish a guideline that sets out the appropriate methods for calculating LRMC, and the types of tariff structure that signal LRMC to customers.

133 AEMC, *Power of choice - giving consumers options in the way they use electricity, Draft Specifications*, 30 November 2012, pp. 28-32.

134 SCER notes the AEMC's proposal that local network characteristics could be reflected in tariffs, but does not intend to seek changes to any jurisdictional requirements for geographic averaging at this time.

135 LRMC is defined as the present value of bringing forward network capital and operating costs to meet a particular user's sustained incremental derived demand for the relevant network service.

SCER has agreed to these recommendations in principle, and intends to submit a rule change proposal to give effect to these.[136]

Energex considered that any time of use network costs should be replicated in the regulated retail price.[137] We consider that this requirement should not be imposed on retailers. Instead, retailers should have the flexibility to set prices as they consider, based on the level of risk they are willing to incur. As discussed above, retailers typically preserve the network charge structure in order to minimise risks.

4.2 Assessment

The adoption of Power of choice recommendations would promote efficiency and reflectivity in time of use network charges, ensuring that benefits from time of use pricing are realised. These benefits include the ability for customers to see the costs of electricity supply on the network. This enables customers to better manage their consumption, and shift consumption to lower-peak times where feasible. This results in a lower utilisation of the network at peak times, reducing overall electricity expenditure faced by customers.

If there are time of use network costs, then these should be reflected in the regulated retail price.[138] This is consistent with our recommendations in the Power of choice review.

This view is supported by EnergyAustralia who comment that assumptions made by the distributor in setting network prices can materially impact on the setting of regulated retail prices and can lead to unexpected or undesirable outcomes.[139] The Commission consider that retailers should have the flexibility to set prices as they consider, reflecting the level of risk that they are willing to bear.

4.3 Commission's recommendations

Network charges should be reflected in regulated retail prices, reflecting the same structure and shape as the network charge set by distribution businesses.

If a network business has set time of use charges, then a regulated price should be developed that is reflective of these time of use network charges, ie a time of use regulated retail price should be developed.

In order for these time of use network tariffs, to be efficient, and result in appropriate cost signals, the Commission notes the recommendations made in the Power of choice review. These recommendations included modifying the NER distribution pricing

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

137 See: Energex, Issues Paper submission, p. 1.

138 This was supported by retailers in submissions to the Issues Paper. See: AGL, Issues Paper submission, p. 22.

139 See: EnergyAustralia, Issues Paper submission, p. 13.

principles to provide better guidance for setting efficient time of use network charges. The recommendations also included improving the existing consultation requirements in the setting of distribution prices, in order to ensure that customer impacts are taken into account in the price structures and/or design.

4.3.1 Load profile changes

The inclusion of time of use network charges may also affect the form of regulation that is used to regulate prices. This is because, as time of use network charges are phased in, customers will adjust their consumption to changes in prices, and so the load profile of customers may potentially change.

Issues relating to changes in load profiles as the result of time of use pricing are outlined in section 8 of this report.

4.4 Timing of network price determinations

Under the current NER, transmission businesses are required to publish their prices for the next financial year by 15 May each year.[140] 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.[141]

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.[142] 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.[143]

The Commission commenced this rule change proposal in early June 2013.[144] 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. This ensures that there is no conflict with, and duplication of, the rule change process that is currently being undertaken.

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140 NER clause 6A.24.2(b).

141 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.

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

143 Origin Energy comments that it supports this rule change process that seeks to address the shortcomings in the current framework. See: Origin Energy, Issues Paper submission, p. 5.

144 See: http://www.aemc.gov.au/Electricity/Rule-changes/Open/annual-network-pricing-arrangements.html.

5 Retail operating costs and retail margin

Summary of this chapter

The retail operating cost component allows retailers to recover efficient costs of operating an electricity retail business. The Commission considers that these should be based on the efficient costs of the incumbent retailer, who is required to provide for customers under the regulated retail price.

These efficient costs should be estimated via a combination of approaches, in order to overcome any information asymmetries that may exist.

The retail margin compensates a retailer for its investment in the business and the risk it assumes in providing retail services.

The Commission is mindful of imposing on regulators prescriptive rules to be used when calculating a retail margin. Therefore, the Commission has developed a framework that guides the regulator in setting the retail margin. This framework articulates an objective, to guide the regulator in making the best estimate of a retail margin at the time a particular retail price determination is made. A set of underlying principles are also defined. This includes that regulators should take into account market circumstances, financial models and other relevant information when setting a retail margin.

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

- retail operating costs, which covers the direct 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, some form of headroom is also provided in order to encourage competition. This headroom may be provided as part of the retail operating costs. The provision of headroom, and how this can be included in regulated retail prices, is discussed in chapter 6.

5.1 Retail operating costs

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

There are several issues associated with determining the retail operating cost allowance, specifically:

- determining a "standard retailer" on which to base the retail operating cost allowance - discussed in section 5.1.1;
- determining the efficient level of the retail operating cost allowance - discussed in section 5.1.2; and
- escalating costs over the determination period - discussed in section 5.1.3.

5.1.1 Determining a "standard retailer"

Context

The level and composition of costs differs across retailers. In order to determine an efficient retail operating cost the regulator needs to determine the nature of the retailer it is using for its cost assessment. In other words the regulator needs to define the "standard retailer" for that region. This will take into consideration 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).

In each jurisdiction the regulator must form a view on the characteristics of the standard retailer, such as about the structure of regulated business, for example:

- is it a stand-alone business?
- does it have economies of scale?

Methods

There are several alternatives available to regulators in defining the standard retailer, specifically:

- separate controls for multiple retailers, ie set retail operating costs for multiple retailers within a jurisdiction;
- a "hypothetical" retailer, ie set retail operating costs across all jurisdictions based on a particular type of retailer;
- the incumbent retailer who is required to offer the regulated retail price in a particular jurisdiction, ie set retail operating costs in a particular jurisdiction based on the incumbent retailer; or
- some other type of retailer, ie selected using a different criterion to those identified above, eg new entrant.

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.[145] A similar definition of the standard retailer was also used in South Australia, prior to the removal of retail price regulation. These characteristics can be considered to approximate the incumbent retailer in these jurisdictions.

In the ACT, the standard retailer is assumed to be the incumbent retailer.[146]

Assessment

The AEMC considers that defining the standard retailer, as anything other than the incumbent retailer, would create a number of issues for the regulator. For example, defining several standard retailers (ie setting retail operating costs for multiple retailers within a jurisdiction) would increase the time and effort undertaken by the regulator. It would also increase costs for retailers by increasing the requirement for data provision and these costs may be passed onto customers.

Defining separate controls would involve developing a large number of assumptions, and collecting data for a range of retailers. It is not clear that the costs of having multiple retail operating cost allowances would be offset by increased benefits for customers. It may also create confusion for customers. The AEMC considers that retail operating costs should not differ substantially across standard retailers since this cost component should represent "efficient costs", which should be similar across retailers within a region.

Defining the standard retailer as a hypothetical retailer may also create significant problems. For example, if the incumbent retailer does not share the characteristics of the hypothetical retailer, then it may result in over- or under-recovery of retail operating costs. Further, this approach would not be transparent to customers - it would not be readily apparent, what or who, the retail operating costs would be based on.

We also propose another definition, where the standard retailer is based on some other type of retailer, eg new entrant.[147] If costs were set on the basis of the new entrant, the purpose of doing so would be to encourage new entry into the market.[148] The AEMC considers that if new entry is to be encouraged, this should be transparent, with a cost

145 See: IPART, *Review of regulated retail prices for electricity, 2013 to 2016: Electricity - Final Report*, June 2013, p. 99; QCA, *Final determination: Regulated retail electricity prices 2013-14*, May 2013, p. 45.

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

147 Momentum Energy, AGL and Alinta Energy supported this definition of the standard retailer. See: Momentum Energy, Issues Paper submission, p. 2; and AGL, Issues Paper submission, p. 5; Alinta Energy, Issues Paper submission, p. 5.

148 Further, new entrants may be well established energy retailers in other locations, or be other large and well-resourced companies. See: Queensland Consumers Association, Issues Paper submission, p. 2.

allowance set separately to retail operating costs.[149] Headroom allowances to encourage competition are discussed in chapter 6.

Basing the standard retailer on the incumbent retailer who is required to provide for customers under the regulated retail price promotes transparency and increases customer understanding since the retailer is an observable entity - rather than a hypothetical construct.[150] Finally, this is the approach that regulators in the NEM currently adopt, and so is consistent with providing predictability and stability of approach.

We note that in Queensland, *all* retailers are obliged to supply customers on regulated retail prices.[151] Estimating retail operating costs based on one "standard retailer" means that only one estimate will be made. To the extent that a second tier retailer, required to offer regulated tariffs, has higher retail operating costs than the incumbent there may be cost recovery concerns in relation to this cost component. However, we consider these concerns to be limited since: retail operating costs only comprise a small proportion of regulated prices; and we have a made recommendation to include a headroom allowance in regulated retail prices.[152]

Commission's recommendations

The standard retailer should be defined as the incumbent retailer, who is required to offer the regulated retail price in a particular jurisdiction. Accordingly, how a standard retailer is defined is likely to vary in each region, depending on the business structure that is in place.

Since the standard retailer (or incumbent retailer) is likely to be the retailer with pricing power, an upper limit on the standard retailer in effect limits all retailers.[153]

Using the characteristics of the incumbent as the basis for the standard retailer does not require the regulator to accept all costs incurred or proposed to be incurred by that retailer as efficient.

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149 This is similar to EnergyAustralia's comment that the attributes of the standard retailer should be selected so that the retail operating costs are set at a level that will encourage competition from new entrant retailers. The Commission considers that this is more appropriately dealt with through an explicit competition allowance. See: EnergyAustralia, Issues Paper submission, p. 15.

150 This was supported by EnergyAustralia, who commented that this approach is beneficial since stakeholders will have insight into this cost component. See: EnergyAustralia, Issues Paper submission, p. 15.

151 Although limited customers are on regulated retail prices with a retailer other than the two largest retailers.

152 This recommendation is discussed further in chapter 6.

153 Once competition has developed, the upper limit will be set by the competitive market.

5.1.2 Determining the efficient level of retail operating costs

Once the regulator has determined the characteristics of the standard retailer, there are 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.

Methods

There are two main methods used by jurisdictional regulators in setting an efficient retail operating cost component:

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

Generally most regulators use benchmarking as a check against the bottom-up information they have received from retailers.

Assessment

Adopting a bottom-up approach can be difficult for regulators in practice due to the information asymmetries that exist between regulators and retailers. To the extent that these asymmetries can be overcome, costs will be more reflective of these costs faced in the jurisdiction, and will improve the cost efficiency of prices paid by customers.[154] Some aspects of the information asymmetry can be addressed by the regulator undertaking benchmarking.

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 that have particular market characteristics, such as a small customer base and limited retail competition, it may be difficult for regulators to find an appropriate benchmark to use. For example, one characteristic mentioned by ActewAGL Retail is the level of economies of scale that a retailer has.[155] This is particularly relevant under a benchmarking approach, given the significant variation in the size of the various regulated retailers that operate in the NEM.

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. This may occur if the benchmarking is solely in relation to other regulatory decisions - regulators may reference each other, referencing each other.

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154 Further, if individual prices are being set by the regulator this approach will be more cost reflective.

155 See: ActewAGL Retail, Issues Paper submission, p. 5.

The AEMC considers that the bottom-up approach is the preferred approach to calculate retail operating costs, since it will result in the most efficient retail operating cost component.[156] In order to overcome information asymmetries that may exist, benchmarking should be undertaken in order to provide a sense check on the "efficiency" of the bottom-up costs.[157] While undertaking two approaches increases the effort and time faced by the regulator, it does increase the likelihood of identifying the level of efficient costs.

Commission's recommendations

It is recommended that the regulator use both a bottom-up assessment and benchmarking as tools in assessing efficient retail operating costs.

The retail operating cost component should not include a headroom allowance to facilitate competition (if competition is deemed to be feasible). Headroom allowances to facilitate competition are discussed in more detail in chapter 6.[158]

5.1.3 Escalating costs

Methods

If the determination period is longer than one year, then retail operating costs may need to be escalated over time, until the next price determination occurs and the costs are re-estimated. Since costs are reset at each price determination, any differences between actual and forecast costs will be removed at that point.

There are several alternatives for how retail operating costs can be escalated, specifically:

- use of a general cost escalator, either:
  - consumer price index (CPI); or
  - wage index; or
- use of a specific cost index, targeted to electricity retail operating costs.

Regulators could also include a productivity improvement factor, in order to take into account that retailers become more efficient in providing services for customers. Productivity improvements mean there is a difference between an increase in the input price for labour and the increase in labour cost for the retailer. For example, retailers

156 This was supported in submissions, who commented that wherever possible, retail operating costs should be based on efficient actual costs. See: Queensland Consumers Association, Issues Paper submission, p. 2.

157 This is supported by EnergyAustralia. See: EnergyAustralia, Issues Paper submission, p. 15.

158 Although the headroom allowance, may include costs that could be considered to be retail operating costs, eg marketing costs.

may have their retail operating costs escalated by a smaller amount than the prices of inputs are actually increasing. This difference, referred to as "X", represents the expected efficiency savings that the retailer is expected to make

Assessment

In theory, a specifically developed retail operating cost index would be the best mechanism to escalate retail operating costs. This would reflect expected electricity retail operating costs movements, and the potential for productivity improvements to arise over the determination period.

However, it would be administratively complex and expensive to develop a specific cost index that was targeted to electricity retail operating costs. Further, it may be difficult to determine a mechanism for forecasting the index, as would be necessary to set future retail operating cost allowances.

A specific cost index may also be less transparent to customers, since it would not be a well-known and understood index. Transparency may also be reduced since the derivation of components may rely on confidential information.

An alternative would be to use a general cost escalator, such as the CPI or a wage index. The advantage of this approach is that these indices are more commonly referred to, and so understood, by customers and other interested stakeholders. Forecasts for these indices are also widely available.

While labour represents a significant portion of retailers costs, using a wage index would not be completely reflective of the costs that a retailer incurs for two reasons:

- the wage index does not reflect non-labour costs; and
- the index does not account for improvements in labour productivity.

The use of this escalation approach may therefore result in retail operating costs that are not totally cost efficient and reflective.

The CPI may not result in a totally cost efficient outcome since it represents a typical basket of consumer goods.[159] However, the CPI is the most well understood index and so its use would promote transparency.

Moreover, regulators currently use CPI to escalate retail operating costs, and so have experience in doing so. This maintains predictability and stability in the approach used to escalate retail operating costs, as well as minimising the administrative burden for the regulator. We consider escalating retail operating costs by CPI is the best approach to use.

159 A combination of the CPI and wage index could be used, but this would increase administrative costs in order to assign weights to each component. The AEMC does not consider that these costs would be offset by increased benefits.

A combination of CPI for non-labour costs and a wage index for labour costs could be used. This is still likely to overstate the cost of labour since it does not recognise productivity improvements.

EnergyAustralia considers that for a short to medium term regulatory period a CPI escalation of retail operating costs is acceptable, if no step changes occur.[160]

Commission's recommendations

Costs should be escalated using a forecast of CPI.

Productivity adjustments

Setting the cost escalator does not explicitly include consideration of the potential for productivity improvements. The escalation of the retail operating cost component could include the potential for productivity improvements.

There are likely to be a number of difficulties in calculating the productivity improvement ("X"):

- it would be administratively complex and expensive to estimate "X"; and
- since "X" is a forecast of productivity improvements that would occur over the upcoming determination period, it is not certain that the forecast would accurately capture outturn improvements.

Retail operating costs only comprise seven per cent of the regulated retail price.[161] Any incentives to engage in productivity enhancements are likely to have a limited effect on the total regulated retail price. Due to the difficulties and cost of attempting to accurately estimate the potential for productivity improvements, and the small size of retail operating costs, the AEMC considers that the costs associated with estimating and including a specific productivity incentive may outweigh the benefits.[162] However, these costs and benefits should be considered by regulators when deciding whether to include productivity adjustments or not. It may be the case that in some circumstances the inclusion of these adjustments would be beneficial. For example, where retail competition has recently been introduced to a jurisdiction and so retailers could be expected to make significant retail operating cost savings in response to competition.

160 See: EnergyAustralia, Issues Paper submission, p. 16.

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

162 Origin Energy consider that productivity gains should be accounted for through the building block process, rather than through exogenous productivity indices. See: Origin Energy, Issues Paper submission, p. 5.

5.2 Retail margin

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.

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 systematic 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. Investors can diversify away this risk.

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 3.3 discussed the risks associated with estimating future energy prices and the implications for the energy purchase cost allowance. These risks will be reflected in the energy purchase cost allowance and so should not be included in the retail margin.

EnergyAustralia considers that the retail margin should consider all types of risks faced by the retailer.[163] The Commission considers that only systematic risks should be considered, since retailers have numerous options available to them in order to mitigate against non-systematic risks.

Jurisdictional regulators aim 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 usually set by reference to a notional or actual retailer operating in a competitive environment.

The level of retail margin needs to be carefully considered, since setting the margin:

- too high can result in inefficient new entry or windfall gains to incumbent retailers at the expense of customers; while
- setting it too low can discourage efficient investment by retailers, including discouraging new retailers from entering the market.

163 See: EnergyAustralia, Issues Paper submission, p. 16.

Both of these consequences are detrimental to customers; however, the risks are asymmetrical.[164] Setting a margin too low likely has more implications for retail investment than setting a margin too high. A low retail margin also has long-term impacts on customers, who may not benefit from the advantages of competition. These asymmetric risks are discussed further in section 6.2.1.

5.2.2 Methods

When calculating a retail margin, regulators typically aim to replicate profitability observed in a competitive market. There are three methods typically used to estimate the retail margin:

- an expected returns approach;
- a bottom-up approach; 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 modern portfolio theory. This theory is that expected returns to equity holders should reflect the systematic risk of those returns. A common method, based on modern portfolio theory, used in calculating the expected return is the capital asset pricing model (CAPM). The CAPM determines a theoretically appropriate required rate of return of an asset taking into account:[165]

- 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 parameter inputs for the analysis. So while it produces a precise estimate, this estimate varies with different methods of determining the inputs.

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164 Origin Energy comment on these asymmetries, and consider that the method used to set a retail margin should recognise this and prompt the regulator to adopt values towards the upper end of the estimate. See: Origin Energy, Issues Paper submission, p. 6.

165 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 in the NEM.[166]

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 represented by the value of its customer base.[167]

This approach can be considered easier to estimate than the expected returns approach. It is also transparent since the calculation 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 exchanges. 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 using data from other regulatory decisions, in that *current* retail margins are examined in order to determine *future* retail margins.

Another limitation with benchmarking is that there may be limited observations available from which to draw inferences. For example, for a vertically integrated business the comparable business should also be a listed vertically integrated business. Data for benchmarking can also be obtained from regulatory decisions. However, there may only be a limited number of decisions to consider.

166 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.

167 For example, the average gearing for retailers in Australia is approximately 22 per cent. See: SFG, *Estimation of the regulated profit margin for electricity retailers in NSW*, 4 June 2013. This is compared with an assumed benchmark gearing for regulated network businesses of 60 per cent.

5.2.3 Assessment

The Commission considers that the retail margin serves the same purpose as the rate of return that is used in the regulation of network businesses in the NEM. The Commission has recently concluded a rule determination on the economic regulation of network service providers.[168] A large component of this rule change involved the AEMC developing a new rate of return framework, which is common to electricity distribution, electricity transmission and gas. This framework requires the regulator to make the best possible estimate of the rate of return at the time a regulatory determination is made.

An important part of this rule change process, was defining the objective of the allowed rate of return. The Commission was mindful of imposing prescriptive rules on regulators. Regulation should balance the costs of achieving the objective, against the benefits from so doing.

The Commission also considers that this balance applies to the setting of the retail margin. No one method can be relied upon to estimate a retail margin. For example the expected return approach relies on theoretical analysis from finance to estimate the margin, and so can be considered by stakeholders to be less transparent. Further, it requires a large number of assumptions (eg on the cost of capital, leverage etc), and so may potentially be less cost efficient to the extent that these assumptions are not accurate.

A bottom-up approach relies on market data to estimate an asset base, and so this component improves cost reflectivity and efficiency. It may be difficult to estimate the value of a retailer's asset base since they typically have small tangible asset bases. Significant data requests are likely to be required, potentially increasing the administrative burden. Since theoretical analysis is used to estimate a return on the asset base, differences between outcomes of these calculations and actual results are inefficient.

Regulators may have difficulties in identifying direct comparators for benchmarking purposes, which may impose administrative costs on the regulator, and also reduce the ability to identify efficient costs.[169] Further, a benchmarking approach tends to be highly circular in Australia since it relies on data from other regulators, making assessment of cost efficiency and reflectivity harder. However, it does increase transparency since it relies on observed data.

In practice most regulators undertake a combination of approaches in estimating the retail margin. This increases the likelihood of identifying the efficient level of the

168 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.

169 Identifying appropriate comparators requires a trade-off between: obtaining a sufficiently large sample size to ensure the statistical reliability of estimates; and ensuring that the firms considered in the analysis face the same risk and growth prospects.

margin, although it does impose administrative burden since it requires the collection and evaluation of more data.

The strengths and weaknesses of these alternatives differ depending on the market circumstances. Therefore, the Commission considers that a regulator can best estimate a retail margin at the time a particular retail price determination is made, if it is guided by an objective that is consistent over time. The Commission's recommended objective for calculating a retail margin, to be used by jurisdictional regulators, is articulated below.

Box 5.1: Objective for calculating a retail margin

The retail margin is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the retailer in respect of the provision of regulated electricity services.

A retail margin that reflects efficient financing costs will allow a service provider to attract the necessary investment capital to maintain a reliable retail electricity service, while minimising the cost to customers. It is also important that the recovery of financing costs be based on benchmark efficient finance costs. This is to provide incentives for firms to adopt efficient financing arrangements, and to protect customers from the effects of inefficient ones. The benchmark efficient entity is one with similar circumstances, and degree of risk to the retailer who is required to provide for customers under the regulated retail price.

Regulators should also be guided by a set of principles, which reflect current best practice. These principles should allow the regulator to take into account: the market circumstances; estimation methods; financial models; and other relevant information. These principles are discussed in more detail in Box 5.2.

Box 5.2: Principles for calculating a retail margin

Methods reflect current best practice

Achieving the objective of retail price regulation requires the best possible estimate of the benchmark efficient financing costs. The Commission consider this can only be achieved when the estimation process is of the highest possible quality. This means that a range of estimation methods, financial models, market data and other evidence must be considered. At the same time, the regulator requires discretion to give appropriate weight to all the evidence and analytical techniques considered.

Flexibility to deal with changing market conditions and new evidence

A robust and effective retail margin must be capable of responding to changes in market conditions. If the allowed retail margin is not determined with regard to the prevailing market conditions, it will either be above or below the return that is required by capital market investors at the time of the determination. Neither of these outcomes is efficient, nor in the long-term interests of customers.

Inter-relationships between parameter values should be considered

For a retail margin to be reliable, it must properly reflect any interactions between the parameters in the estimation process. In some financial models, two or more parameters are either mathematically linked (ie the relationship between them can be expressed in the form of a mathematical formula) or they may be linked in other ways due to the underlying assumptions made in estimating various parameters. The proper implementation of a retail margin would require any relationship between parameters to be recognised when estimating those parameters as part of deriving the overall retail margin estimate.

5.2.4 Commission's recommendations

In order to determine the appropriate method, regulators should be guided by a retail margin objective, specifically:[170]

> *The retail margin is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the retailer in respect of the provision of regulated electricity services.*

Regulators should also be guided by a series of principles in making this decision, specifically:

- a range of estimation methods, financial models, market data and other evidence should be considered;
- the retail margin should be capable of responding to changes in market conditions; and
- any interrelationships between estimates of financial parameters that are relevant to the estimates of the return on equity and return on debt should be considered.

In practice, this will likely result in a regulator using either an expected returns or bottom-up approach to calculate the retail margin, depending on the particular circumstances in the market at the time. Benchmarking should be used as a "sense check" against the primary method.

5.2.5 Application of the retail margin

There is also a question as to whether the retail margin should apply to all cost components. The majority of jurisdictional regulators estimate the retail margin as a percentage of total costs.[171] An alternative is to apply the retail margin to a retailer's

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170 This retail margin objective is consistent with the overall obejctive for regulating retail prices, as articulated in chapter 2.

171 Support for this was expressed by AGL and EnergyAustralia in their submissions to the Issues Paper. See: AGL, Issues Paper submission, p. 25; and EnergyAustralia, Issues Paper submission, p. 16.

controllable costs only, ie the wholesale energy and retail components.[172] The structure of network costs is generally reflected in regulated retail prices, and so the recovery of these costs may not represent a significant risk to retailers.[173]

The AEMC considers that given the objective of the retail margin is to estimate it in relation to a given level of risk, then the outturn values should be the same whether it is applied to all cost components or only the retailer's controllable costs. As outlined above, the Commission consider that there are risks associated with the network cost component. If the retail margin is calculated as applying to all costs, it will reflect the risks for all cost components. However, if the retail margin is calculated as applying only to controllable costs, then the margin will only reflect the risks associated with these components. Therefore, in practice there will be little difference between the two approaches.

172 Indeed, this was the approach adopted by Essential Services Commission of South Australia (ESCOSA) in its most recent determination. Queensland Consumers Association also advocated this approach in its submission to the Issues Paper. See: Queensland Consumers Association, Issues Paper submission, p. 2.

173 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. 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.

6 Headroom for facilitating competition

Summary of this chapter

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.

Facilitation of competition is a matter for jurisdictional governments to decide upon. However, if jurisdictional governments decide to facilitate competition, then some form of headroom should be included in the regulated retail price.

The overall regulated retail price influences the development of the competitive market, since new entrant retailers and existing retailers essentially compete against this price.

Headroom should be set and included in the retail electricity price in a transparent manner. The Commission considers that a competition allowance is the most appropriate method to provide headroom in the regulated retail price.

The setting of a competition allowance is subjective. Regulators should consider both quantitative and qualitative information in determining an appropriate competition allowance.

6.1 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. As also discussed in chapter 2, SCER and COAG have also set out their commitment to having competitive retail markets.

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

For competitive retail markets to develop, regulated prices must not be set so low that they prevent efficient retailers from entering the retail market and improving the offers available to customers in the long term. Accordingly, some regulators include a form of "headroom" in the regulated retail price in order to set the price at a level that does not prevent retail investment from occurring.

6.2 Should competition headroom be included in the regulated retail price?

The question of whether or not competition in retail electricity should be facilitated within a jurisdiction, is a matter for jurisdictional governments to decide upon.

If jurisdictional governments wish to facilitate competition (where price regulation remains), then the Commission considers that there are several reasons as to why headroom should be included. These are detailed below.

6.2.1 Asymmetrical risks

The risks of setting a regulated retail price too high, or too low are asymmetrical. If a regulated retail price is set too high, then there may be higher costs for the customer in the short-term. The Commission considers that it is likely that over time prices would be reduced through competition, with competitors entering the market and eroding the higher prices down to efficient cost levels.[174]

In contrast, if a regulated retail price is set too low the consequences are likely to be more detrimental to customers' long term interests. Retail investment may not occur, and so competition may not eventuate.[175] The benefits from competition (lower prices, improved quality, increased innovation etc) will not be realised. Further, dependent on the extent to which regulated prices are set too low, this may create financial difficulties for current retailers, potentially resulting in underinvestment in products and services valued by customers, and ultimately retailer failure.

These risk asymmetries can be reduced, as competition develops, by jurisdictions giving firm commitments to remove retail price regulation by a fixed date. These commitments can provide certainty to retailers, and so help to encourage efficient new entry.

Most submissions commented heavily on these issues. There was concern from some stakeholders that using retail price regulation to encourage competition may result in distortions in the market.[176] For example, Etrog Consulting stated that in other competitive markets, new competitors do not depend on the artificial raising of incumbents' prices so that they can enter the market.[177]

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174 In the absence of barriers to entry competitors would be expected to enter the market if prices are too high.

175 IPART also commented on these asymmetric risks in its submission to the Issues Paper. If regulated prices are set too low, then the incentives may not be sufficient for retailers to compete for customers, and for customers to enter the market. Other submissions also recognised this issue, eg: ActewAGL Retail, Issues Paper submission, p. 6; and AGL, Issues Paper submission, p. 24.

176 See: Etrog Consulting, Issues Paper submission, p. 6; Queensland Consumers Association, Issues Paper submission, p. 2.

177 See: Etrog Consulting, Issues Paper submission, p. 6.

Other submissions, mainly retailers, were in support of headroom being included.[178] Retailers indicated that headroom provides incentives for retailers to enter the market and compete for customers. AGL commented that price path certainty, at a sustainable level of margin, is a necessary condition for retailers to have the confidence to invest in market entry.[179]

Submissions also argued that the inclusion of a headroom allowance may also provide an incentive for customers to switch to a lower priced market offer.[180] To the extent that prices are higher due to the headroom, prices will be eroded down through the competitive market.[181]

6.2.2 Real options

Retailers incur costs by making a decision to enter a market today, pre-empting other decisions that could have been made later. This concept is referred to in economic literature as a "real option".[182]

Market conditions evolve unpredictably. Given this uncertainty, there is a cost of investing now, rather than waiting for new information to arrive about the likely returns from the investment. Businesses have options to invest (whether in electricity retail or elsewhere), and when they make the decision to invest (ie give up the option of making another investment) they give up the associated "option value".[183]

This lost option value can be quite large. This may mean that:

- barriers to entry may be larger than currently thought, since this value is not usually reflected in the cost allowance that forms part of the regulated retail price; but
- that price-cost margins may be overstated since some competition occurs prior to entry.

Given these costs, there is an argument that a form of headroom should be included in regulated retail prices, reflecting these considerations. If an increased premium accounting for these costs is not allowed, then prices will be set below incurred efficient costs. Due to the implications for investment and competition, setting prices below costs is likely to be more harmful than prices that are moderately in excess of efficient costs.

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178 See: Simply Energy, Issues Paper submission, p. 1; AGL, Issues Paper submission, p. 7; EnergyAustralia, Issues Paper submission, p. 17; and Origin Energy, Issues Paper submission, p. 13; IPART, Issues Paper submission, p. 2.

179 See: AGL, Issues Paper submission, p. 7.

180 See: Simply Energy, Issues Paper submission, p. 1.

181 See: AGL, Issues Paper submission, p. 23.

182 See: Robert S Pindyck, "Sunk Costs and Real Options in Antitrust Analysis", in *Issues In Competition Law and Policy*, 619, 2008.

183 Options to invest (in call centres, marketing and advertising etc) are referred to as "real options".

6.2.3 Practical experience

Practical experience in Australia has shown that those markets that have included some form of headroom have developed competition, while those that do not have headroom have not.

Specifically:

- In Queensland, the QCA provides a headroom allowance, as well as allowing for new entrant marketing costs over time.[184] The QCA considers that competition has developed considerably since it was introduced, although this is largely limited to South-east Queensland.[185] More recently, the Queensland Government has committed to removing regulated retail prices by 1 July 2015, provided adequate customer protection measures are in place.[186]

- In NSW, IPART includes a headroom allowance in order to provide incentives for competition in the NSW retail electricity market.[187] IPART has also concluded that the retail market for electricity in NSW is competitive, and recommends the removal of retail price regulation.[188] This is consistent with the Commission's recent draft conclusions that competition in the electricity market for small customers in NSW is effective, and so price regulation should be removed.[189]

- In Victoria, the Office of the Regulator-General (precursor to the ESC) stated that it considered that the regulated retail price included a degree of headroom (although it noted that it would not be appropriate to allow an additional "headroom" element).[190] The AEMC found that competition in electricity retailing in Victoria was effective.[191] Victoria removed regulated electricity prices in January 2009 in response to the existence of effective retail market competition.

- In South Australia, ESCOSA made a draft determination in 2012 to include an explicit competition allowance margin. This was not implemented since the South Australian Government announced it would remove regulated retail electricity prices in the face of effective competition.

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184 The uniform tariff policy adopted has resulted in prices being set below cost in some regions.

185 QCA, *Final determination: Regulated Retail Electricity Prices: 2013-14*, May 2013, p. 56.

186 Queensland Government, *Queensland Government response to the Interdepartmental Committee on Electricity Sector Reform*, 16 June 2013.

187 IPART, *Review of regulated retail prices for electricity 2013 to 2016 - Final Report*, June 2013, p. 108.

188 IPART, Issues Paper submission, p. 1.

189 AEMC, *Review of Competition in the Retail Electricity and Natural Gas Markets in New South Wales*, Draft Report, 23 May 2013.

190 Office of the Regulator-General, *Options for the Review of Retail Electricity Tariffs, Final Report*, September 2001, p. 23.

191 See: http://www.aemc.gov.au/market-reviews/completed/review-of-the-effectiveness-of-competition-in-the-electricity-and-gas-retail-markets-victoria.html

In contrast, the ICRC has not included any form of headroom, since it considers that the setting costs based on the incumbent retailer is the best approach. It is "unconvinced" that an additional allowance would necessarily lead to an increase in competition.[192] Work undertaken by the Allen Consulting Group on behalf of the AEMC in the review of effectiveness of competition in the electricity retail market of the ACT found that the absence of customer acquisition and retention costs (CARC) in ACT regulated retail prices results in very low retail margins for competing retailers.[193]

AGL also commented that it considers that the exclusion of headroom in ACT has been a major deterrent to the development of any meaningful retail competition in the ACT electricity market.[194] ActewAGL Retail also commented that the AEMC previously found one contributing factor for the lack of competition in ACT, was that the regulated price is based on the efficient costs of ActewAGL Retail, rather than a new entrant retailer.[195] This conclusion was based on the rationale that the cost build up did not include any allowance to recover the costs retailers incur to acquire new (and retain existing) customers.

The Commission recognises that this evidence is not conclusive; however, it does suggest that the inclusion of headroom, at the very least, does not inhibit competitive markets developing.[196]

6.2.4 Commission's recommendations

The Commission considers that in deciding whether or not to include headroom, jurisdictions should consider the current and potential future state of competition and the market structures that are in place.

If a jurisdiction decides that headroom should be included, then this should be set separately to other cost components. This promotes transparency since it will be clear what costs are included for the purposes of facilitating competition. The importance of setting a transparent headroom allowance was highlighted by both AGL and IPART in their submissions to the Issues Paper.[197]

The AEMC acknowledges that affordability issues are an important matter to consider when reviewing the operation of a market. A competitive market ensures that energy prices reflect the real costs of energy supply and sends appropriate price signals to firms regarding investment decisions and to customers regarding their energy use, resulting in lowest overall cost of supply in the long-term.

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

193 The Allen Consulting Group, *Effectiveness of electricity retail competition in the ACT - price and profit margins analysis*, 2010, p. 26.

194 See: AGL, Issues Paper submission, p. 25.

195 See: ActewAGL Retail, Issues Paper submission, p. 3.

196 This practical link was also recognised by EnergyAustralia in its submission. See: EnergyAustralia, Issues Paper submission, p. 17.

In order to further encourage competition a number of additional measures, beyond the regulated retail price, should be put in place. These include introducing measures to provide customers with the information and support that they need to find an energy deal that suits them. The AEMC is considering what these measures should be as part of its review of competition in the retail electricity and natural gas markets in NSW.

The Commission considers that non-price elements, and barriers to entry in the market more broadly should also be looked at in relation to facilitating competition. This view was also expressed by IPART, who stated that retail price regulation cannot protect customers from price increases driven by regulatory, policy and market factors, nor can it protect vulnerable households that may be experiencing affordability problems. In respect of vulnerable households, it is important to ensure that any specific groups of customers that cannot readily access the competitive market, or require financial assistance are specifically considered and targeted responses developed.[198]

The estimation of headroom is discussed below.

6.3 Competition headroom

Since new entrant retailers essentially compete against the regulated retail price as well as each other, it is the overall level of regulated retail prices, rather than of the headroom allowance itself, that influences the development of the competitive market. Inclusion of headroom aims to reflect the increased short-term costs that a new entrant retailer would face.

For a new entrant retailer their:

- wholesale energy costs may or may not be higher than the incumbent, depending on the characteristics of the new entrant;
- network costs should be the same as the incumbent, since there will only be one distributor in a region;
- retail operating costs will likely be higher than the incumbent to account for higher marketing costs, new billing systems etc; and
- the retail margin will also likely be higher than the incumbent to account for the increased risk.

Ideally (at least some of) these increased costs for a new entrant retailer should be reflected in the headroom. The AEMC considers that a sufficient amount of costs should be included to allow retail investment to occur. This does not mean that new entrant retailers will not incur losses, these may still occur as a customer base is built

197 See: IPART, Issues Paper submission, p. 2; AGL, Issues Paper submission, p. 5.

198 See: IPART, Issues Paper submission, p. 2.

up over time. The inclusion of headroom does allow increased certainty of costs, encouraging efficient entry to occur.

6.3.1 Methods

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

- as part of the energy purchase cost allowance;
- a specific competition allowance, ie a specified dollar amount added to the retail cost stack;
- a competition margin, ie a percentage increase on top of the costs that make up the regulated price;[199] or
- a combination of several of the above approaches. For example, IPART adopts a specific competition allowance, but adjusts for the extent that the wholesale cost allowance includes some form of margin.[200]

6.3.2 Assessment

The different options are considered below.

Wholesale cost allowance

There may or may not be different wholesale costs between an incumbent and a new entrant. This depends on a number of factors, including the new entrant's portfolio structure, whether it already operates as a retailer in other states, whether it owns its own generation etc. The Commission consider it would be difficult to reflect these costs in a headroom allowance as it would require the regulator to determine what sort of retailer should be encouraged to enter the market.

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 means of encouraging new entry into the retail market. This is since the costs that retailers face at any particular point in time are similar to those derived under market based

199 For example, this can be considered akin to the approach the QCA currently adopts. In determining this margin, 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. This headroom allowance is applied as a fixed percentage of the total value of all cost components.

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

approaches to estimating energy purchase costs. This will only provide allowances, for those periods where LRMC is greater than market based estimates.

One way of addressing the transitory nature of this headroom is to set the wholesale energy purchase cost based on the higher of LRMC or market based methods. This suffers the same problem as any attempt to provide for competition headroom through setting the wholesale energy cost "higher". It lacks transparency since the difference is not being determined based on the competitive costs of a new entrant. It is also not efficient as it is not immediately obvious that the headroom in the wholesale cost allowance is being used to offset higher retail operating costs and margin. This is discussed further in section 3.2.3.

Competition allowance

Some regulators also set a specific competition allowance. The AEMC notes that this is typically called a customer acquisition and retention cost allowance by regulators.[201]

A specific competition allowance recognises that new entrants may have higher costs since it seeks to allow for increased costs that new entrant retailers will face in attracting, and securing, a customer base.[202] A competition allowance seeks to promote efficient new entry from retailers by providing an allowance for their costs directly related to entry into the market.

These new entrant costs are more transparent, since they can be assessed via actual data from the market. This approach is likely to produce the best estimates of the increased costs that new entrant retailers may face, since costs are derived from readily observable costs in the market, which reflect the prevailing market conditions.

Competition margin

Another alternative is to include a competition margin, where the regulated retail price is adjusted upwards by a specified percentage.

The AEMC considers that a competition margin is most appropriately calculated based on the same principles as those used for the retail margin. This would calculate a retail margin, but reflect the higher risks associated with a new entrant. In practice, this would mean estimating a competition margin as equal to the retail margin for the new entrant, less the retail margin for the incumbent retailer.[203]

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201 IPART, QCA, OTTER and ICRC have all used this terminology.

202 The AEMC considers that even if this competition allowance is included, it will not result in efficient entry in all cases. For example, where a business has a significantly different cost structure to those firms currently in the market. Regulated retail prices cannot overcome cost differences between retailers.

203 Some parties may argue that if there are customer acquisition and retention costs that have been incurred by incumbents in the past, then these should be properly reflected in the incumbent's asset bases and cash flows, and so if a bottom-up approach to calculating a retail margin has been used, a higher retail margin would already have been allowed. This higher retail margin would therefore

The estimation of this margin would impose a large administrative burden on the regulator in order to assess the change in the retail margin.

As discussed in section 5.2, the estimation of the retail margin varies with methods for determining the inputs to the calculation. For this reason it is likely that methods used to estimate the retail margin will not be precise enough to facilitate this approach, meaning the estimate would not be cost reflective.[204]

It is also likely that the headroom margin calculated (ie the difference between the retail margins) would be small, and so there may be limited value in including this in order to encourage competition. The Commission consider that including a competition allowance margin to account for higher risks, as calculated in this manner, should not be included - the costs of calculating this component likely outweigh the risks.

Combination

Lastly, a combination of the above approaches could be used.

There could be justification for the use of both a competition margin and a competition allowance. Given the difficulty in determining the competition margin, and the likelihood that it will be small in magnitude, this will increase the administrative burden but is unlikely to produce sufficient benefits in terms of accuracy to justify it being done.

For the reasons outlined above the difference between LRMC and market based energy purchase cost methods should not be used as a competition allowance. This is consistent with IPART's approach that recognises that LRMC currently produces a higher wholesale energy purchase cost than the futures market does and so adjusts the competition allowance to adjust for this difference in wholesale cost. IPART's approach is not a combination - rather it isolates the wholesale cost difference from their consideration of the competition allowance.

6.3.3 Commission's recommendations

The Commission considers that a competition allowance is the most appropriate method to provide headroom in the regulated retail price.[205] This reflects the element that is most easily calculated in regards to increased new entrant costs. It also reflects

already provide headroom for an entrant. However, this is likely only true where the retail margin is calculated on a bottom-up approach - it may not be estimated on this basis in all cases. Further, it is unlikely that the methods used to estimate the retail margin will be precise enough for these costs to be fully reflected.

204 For example, if the CAPM is used to calculate the return on equity the difference between the incumbent retailer who is required to offer the regulated retail price and the new entrant retailer will be reflected in the "beta". The current methods used by regulators for determining the beta are unlikely to be sensitive enough to distinguish between these two risk profiles.

205 There will likely be difficulties in calculating a competition allowance where a uniform tariff policy is in place.

the largest cost differential between an incumbent and a new entrant - the marketing costs of acquiring, and retaining customers.

In practice, since potential new entrant retailers will consider the total regulated retail price in their decisions to enter, there may not be a difference to retailers as to how this headroom is included. The decision on how the headroom is included in the regulated retail price may affect the level it is set at.

A competition allowance is best 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 headroom is also important to ensure that customers understand the objectives of retail price regulation and the longer term benefits that facilitating competition may have for customers.

6.4 Estimation of a competition allowance

6.4.1 Methods

There are several methods available to estimating a competition allowance - a bottom-up or top down approach:

- top down approach - where the regulator observes the level of regulated retail prices historically, and the corresponding outcomes in the competitive market, eg comparing the incentive included in the regulated prices, with the average monthly switching rate;[206] or

- bottom-up analysis - where the regulator considers the costs incurred by retailers to acquire new customers and retain existing customers. This approach considers the upfront or direct costs associated with sales, as well as other indirect costs or reductions in revenue associated with providing ongoing discounts or other incentives to entice customers onto market contracts. This information is typically sourced from standard retailers within the jurisdiction.

6.4.2 Assessment

The Commission considers that due to the lack of available detailed information, any method of calculating a competition allowance is imprecise and requires a judgement call from regulators.[207] The Commission considers that regulators should utilise as

206 AGL considers this prevailing level of discount should be taken into account when setting the competition allowance. See: AGL, Issues Paper submission, p. 25.

207 This view was also expressed by AGL, who commented that in practice a degree of discretion is required by the regulator in setting a margin to promote competition. See: AGL, Issues Paper submission, p. 5.

much information as possible in order to develop the most efficient, and best, estimate of a competition allowance.

In addition to this quantitative information sourced from retailers there are also a series of market indicators that regulators may consider such as:

- switching rates;
- number of active retailers and degree of market concentration;
- available market offers;
- customer participation and engagement;
- the extent to which other cost allowances already provide a margin on top of the efficient short-term cost of supply; and
- the extent to which other cost differences between the incumbent and new entrants (beyond marketing costs) should be included.

6.4.3 Commission's recommendations

There is benefit in regulators using both a bottom up and top down approach in order to determine an appropriate competition allowance.[208]

The cost estimates developed under this approach will reflect increased retail operating costs that new entrants face, largely driven by increased marketing costs. This is appropriate since this is likely to be the largest difference between incumbent and new entrant costs.[209]

The bottom-up approach should utilise information on the customer acquisition and retention costs faced by second tier, or new entrant retailers.[210]

Regulators should also consider the market indicators outlined above when determining whether previous competition allowances were set at an efficient level and the proposed allowance should be adjusted accordingly.

Finally, since the level of competition in markets can develop and change across time, the Commission considers that it is important that regulators monitor these market indicators and the state of competition in the market over time. To the extent that these change, this may necessitate a corresponding change in the competition allowance.

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208 This recommendation was supported by EnergyAustralia. See: EnergyAustralia, Issues Paper submission, p. 18.

209 Energy purchase costs may also be substantially different; however, this will be determined on a case by case basis.

210 See: Alinta Energy, Issues Paper submission, p. 6.

7 Environmental and jurisdictional schemes

Summary of this chapter

The enhanced Renewable Energy Target scheme imposes costs on retailers, which are passed on to customers. Consistent with our advice on the energy purchase cost allowance, the Commission recommends that, where available, liquid futures market prices should be used to determine this allowance. Only where there is no futures market, or insufficient trading on the futures market, should alternative methods be used.

Some jurisdictions have also developed their own individual environmental schemes, which seek to minimise either carbon emissions and/or promote energy efficiency. The Commission considers that it is difficult to develop a comprehensive set of recommendations on these schemes, since they differ significantly across jurisdictions. However, the Commission has developed a broad set of criteria to guide regulators in the setting of these cost components.

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

In a competitive market, retailers pass through the cost of meeting their obligations under these schemes to customers. Jurisdictional regulators need to estimate a retailer's cost of complying with these schemes in setting regulated retail electricity prices.

The Renewable Energy Target (RET) scheme was established by the Commonwealth Government to encourage additional renewable energy generation.[211] On 1 January 2011 the RET was separated into two parts: the Large Scale Renewable Energy Target (LRET) and the Small Scale Renewable Energy Scheme (SRES). Section 7.1 discusses costs associated with the LRET, while section 7.2 discusses the SRES. Section 7.3 discusses costs associated with jurisdictional energy schemes.

7.1 Large-scale Renewable Energy Target

7.1.1 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[212] each year.[213] The renewable power percentage[214] is used by retailers (and other liable entities) to determine their annual liability in terms of the number of Large-scale Generation Certificates (LGCs).

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

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

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

214 See: Renewable Energy (Electricity) Regulations 2001.

The cost to retailers of complying with this scheme is based on the market price. Historically the certificate price has varied between approximately $10 and $60.[215] Additionally, there is a futures market for LRET certificates. 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.[216]

7.1.2 Calculation of LRET

Costs associated with the LRET scheme should be determined based on a method that is consistent with current regulatory practice by all regulators. This provides predictability and consistency of approach.

Accordingly, 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
- the price for large-scale generation certificates.

The renewable power percentage is set and published by the Clean Energy Regulator. This represents a transparent and accurate, and so efficient, means of setting the renewable power percentage. This makes it the preferable means of setting this component.

The main policy issue for regulators is in deciding which "price" to use in estimating a retailer's cost of complying with the LRET. This is discussed below.

7.1.3 Methods

There are a number of different methods that regulators can use to estimate the price of large scale generation certificates, specifically:

- historic market prices; or
- futures market prices; or
- an estimate of the LRMC 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.

215 Clean Energy Regulator, About the Renewable Energy Target, April 2012.

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

7.1.4 Assessment

Historic prices can be used as an estimate of future prices. The use of historic price data relies on the assumption that the price for certificates in the past is likely to be similar over the upcoming determination period. This may not always be the case, given changing government environmental policies.

Further, any significant change in market circumstances will disrupt the usefulness of historic prices as a forecast. Alinta Energy commented that there are significant shortcomings with this approach. This is since the assumption that the price for certificates in the past is similar to that over the determination period is unlikely to be true given the significant market developments that are occurring.[217]

An alternative is to use futures prices as an estimate for the price. This data will reflect the market circumstances over the upcoming period and so be most cost reflective and efficient.

The Commission considers that futures prices generally produce the best estimates of future electricity costs, promoting cost efficiency and reflectivity. Further, futures prices represent the views of market participants, and so may be more likely to reflect the particular circumstances of the market, improving reflectivity and transparency.

Similar to the energy purchase cost allowance, the accuracy of future prices as a forecast largely depends on the liquidity of the futures market. For example, the AEMC understands that some retailers obtain LRET certificates by directly entering into power purchase agreements with renewable generators. This approach would mean that certificates are never traded in the market – and so pricing data would not reflect these circumstances.

The factors for assessing the liquidity of the futures market for LRET certificates are the same as those for wholesale energy market futures set out in section 3.5. Regulators could also consider qualitative information gained from sampling a range of retailers and generators.

An alternative to market prices is to use 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 takes into account the interactions between the energy market (expressed as the wholesale spot price) and the large scale generation certificate market (expressed as the certificate price).

The use of a LRMC price estimate will likely be different to the prevailing market price. 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.

217 See: Alinta Energy, Issues Paper submission, p. 6.

The last alternative is to use the penalty or shortfall price. While the penalty price is certain, it would provide retailers with more revenue than they require – the after-tax penalty price will always be above the market price.

This recommendation was also consistent with the views of Alinta Energy in its submission to the Issues Paper, where it commented that either a futures price or LRMC method should be used.[218]

7.1.5 Commission's recommendations

Regulators should calculate a retailers' liabilities under the LRET on a price per MWh basis by multiplying the:

- renewable power percentage, which determines the number of certificates that retailers are required to purchase; by the
- the price for large-scale generation certificates.

The renewable power percentage should be sourced from data from the Clean Energy Regulator.

As a result of its superior qualities of transparency and efficiency, wherever possible a futures market approach should be used.[219] The Commission recognises that this may not be appropriate when there is insufficient liquidity and so the Commission considers that futures prices should only be used to estimate costs provided the market is liquid. Regulators should consider a set of liquidity factors in determining whether the futures market for LRET certificates is liquid or not. If the market is liquid, then futures prices should be used.

An LRMC method should be used if the market is found to be illiquid. It is likely to reflect prices over an extended period of time, since it reflects long-term costs. Since it is an estimate of costs, it does not reflect the actual demand/supply balance of the market. Use of LRMC when the futures market is illiquid is consistent with EnergyAustralia's submission, which supported the use of a LRMC to calculate the large-scale generation certificate price, due to liquidity in the market currently being low.[220]

218 See: Alinta Energy, Issues Paper submission, p. 6.

219 These recommendations are consistent with the recommendations for estimating the energy purchase cost allowance, as discussed in section 3.3.

220 See: EnergyAustralia, Issues Paper submission, p. 19.

7.2 Small Scale Renewable Energy Scheme

7.2.1 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.

7.2.2 Calculation of SRES

Costs associated with the SRES scheme should be determined based on a method that is consistent with current regulatory practice by all regulators. This provides predictability and consistency of approach.

Accordingly, retailers' liabilities under the SRES should be determined on a price per MWh basis, by multiplying the:

- small-scale technology percentage, which determines the number of certificates that retailers are required to purchase; by the
- the price for STCs.

The small-scale technology percentage is set and published by the Clean Energy Regulator. This should be used by the regulators when calculating the SRES cost component. By using this publicly available number, transparency is enhanced.

One policy issue for regulators is in deciding which "price" to use in estimating a retailer's cost of complying with the SRES. This is discussed below.

7.2.3 Methods

Similar methods to those used for LRET exist for calculating the STC price, specifically:

- 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.

7.2.4 Assessment

Similar to the LRET, the Commission considers that a liquid futures market will generally produce the best estimates of future electricity costs promoting cost efficiency and reflectivity. This also enhances transparency since data is publicly available.

Regulators should assess whether there is sufficient liquidity in the market for SRES certificates in deciding whether futures prices should be used or not. The same liquidity factors that were outlined above for assessing liquidity in the LRET market should be used.

In an illiquid market, the clearing house price should be used.[221] While this is a penalty price, and so may result in over-recovery for retailers the difference in price is relatively small – approximately $4/MWh difference currently.[222]

The Commission considers that the clearing house price should be used, since LRMC is not a viable option for the SRES market. The AEMC considers there would be a number of difficulties in using the LRMC to estimate the price. For example, the price for small-scale technology certificates 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.

7.2.5 Commission's recommendations

Regulators should calculate retailers' liabilities under the SRES on a price per MWh basis by multiplying the:

- small scale technology percentage, which determines the number of certificates that retailers are required to purchase; by the
- price for STCs.

The renewable power percentage should be sourced from data from the Clean Energy Regulator.

Provided that there is sufficient liquidity in the market for SRES certificates, future prices should be used (ie a market based method). In the absence of sufficient liquidity, the clearing house price should be used (ie a cost based method). The same liquidity factors that were used for assessing liquidity in the LRET market should be used to assess liquidity in the SRES market.

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221 AGL supports the use of the clearing house cost as a proxy for the STC cost faced by retailers since it is more reliable than market prices. See: AGL, Issues Paper submission, p. 27. Alinta Energy and EnergyAustralia also supported the use of the clearing house (penalty price). It supported this regardless of the level of liquidity. See: Alinta Energy, Issues Paper submission, p. 6; and EnergyAustralia, Issues Paper submission, p. 20.

222 This is in contrast to a difference of +$20/MWh between the current price, and the penalty price for LRET certificates.

7.2.6 Timing difference

Context

As discussed above, the small scale technology percentage is used to calculate retailer's liabilities under the SRES scheme. This percentage is set annually by the Clean Energy Regulator on a calendar year basis to align with the expected rate of STC creation.

Since this is set on a calendar year basis, there is a timing difference between when the small-scale technology percentage is set by the Clean Energy Regulator, and when jurisdictional regulators are required to set regulated retail electricity prices (typically on a financial year basis).

This may create cost recovery risks for a retailer, since the SRES cost component that it can recover from regulated retail prices will be set prior to when the retailer knows what its obligations are under the SRES scheme. Several retailers submitted that the way the SRES is calculated does create additional risks.[223] The calculation requires jurisdictional regulators to estimate the small-scale technology percentage 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 under-estimating the small-scale technology percentage.

The Clean Energy Regulator also publishes estimates of future small-scale technology percentages, 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 small-scale technology percentage 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.

If the small-scale technology percentage is over-estimated by jurisdictional regulators, retailers will have been allowed to recover more revenue than necessary. If the small-scale technology percentage is under-estimated, 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.

Recent instability in the small-scale technology percentage 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 small-scale technology percentage as all STCs that an installation is deemed to produce over its lifetime are created in the year that an installation is registered with the Clean Energy Regulator. 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 small-scale technology percentage for that year.

223 See: Momentum Energy, Issues Paper submission, p. 2.

Assessment

The Commission considers that the small-scale technology percentage should be calculated on the basis of six month historic data, six month forecast data. This utilises the most up-to-date information and so maximises cost reflectivity. Further, this is consistent with current regulatory practice, and so predictability is promoted.

In order to account for risks associated with under- or over-recovery, a true-up mechanism should be implemented, which would increase predictability and stability for retailers meaning lower risk for them and lower costs for customers. Under a true-up mechanism any difference in forecast costs, and costs incurred will be adjusted for at the end of regulatory year.[224] If these costs were not adjusted, retailers would face increased risks that they may not recover all costs incurred associated with complying with the SRES scheme.[225]

Commission's recommendations

Retailer's liabilities under the SRES should be determined on a price per MWh basis by multiplying the:

- small scale technology percentage, which determines the number of certificate that retailers are required to purchase;[226] by the
- price for STCs.

Provided that there is sufficient liquidity in the market for SRES certificates, future prices should be used (ie a market based method). In the absence of sufficient liquidity, the clearing house price should be used (ie a cost based method).

The same liquidity factors that were used for assessing liquidity in the LRET market should be used to assess liquidity in the SRES market.

SRES should be included as a defined event in a true-up mechanism. Retailers should be provided an allowance for these costs, with any under- or over-recovery adjusted for in the following year.

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224 This approach was supported by ActewAGL Retail. ActewAGL Retail supported a true-up mechanism for all environmental schemes. We consider that under the current schemes, only the SRES scheme has significant uncertainty to warrant a true-up mechanism. The introduction of other environmental schemes will be considered through the cost pass through mechanism. This is discussed in section 8.3. See: ActewAGL Retail, Issues Paper submission, p. 6.

225 This addresses Momentum Energy's concern that any movements in the price of environmental components should be re-opened. See: Momentum Energy, Issues Paper submission, p. 3.

226 This should be calculated based on six month historic data, six month forecast data.

7.3 Jurisdictional energy scheme costs

7.3.1 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.[227]

In addition to the jurisdictional environmental schemes discussed in this section, a number of jurisdictions also have feed-in tariff schemes.[228] Feed-in tariff schemes provide incentives for small customers to install solar photovoltaic systems by providing a payment for the electricity which is generated through these systems.[229]

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

228 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.

229 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.

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, 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.

7.3.2 Assessment

The Commission considers that it is difficult to develop a recommended approach to estimating the cost components associated with these schemes, since they differ significantly across jurisdictions. This view was supported by a number of submissions.[230]

Despite this, we consider a broad set of criteria can be developed to guide regulators in the setting of these cost components. The development of these criteria promotes predictability and stability to stakeholders since stakeholders will have an understanding about how these cost components will be estimated.

Further, to the extent that retailers operate across multiple jurisdictions, transparency will be increased. Retailers and stakeholders will be aware that costs associated with all jurisdictional schemes will be estimated on a consistent basis, and so can take this into account.

The AEMC considers that these criteria are:

- Provided there is sufficient liquidity, market based methods for estimating prices are preferred. Liquidity should be assessed using the same factors as set out above for assessing liquidity for wholesale futures. This promotes cost efficiency and reflectivity, as well as transparency through the use of data that reflects the views of participants in the market.

- The most up-to-date and accurate information should be used. For example, quantities as listed in the actual regulations should be used. This promotes transparency, since quantities used will be clearly visible to participants.

- The method should be clear and transparent to retailers, in order for retailers to effectively manage risks associated with the schemes, and to minimise

230 See: AGL, Issues Paper submission, p. 27; Alinta Energy, Issues Paper submission, p. 6.

under/over recovery. This also promotes transparency for other interested stakeholders, such as customer groups. It also ensures that cost components are stable and predictable, both across time and across jurisdictions. This increases confidence of retailers in the regulatory arrangements.

This should take into consideration a number of factors regarding jurisdictional schemes such as, how the jurisdictional scheme is structured, the timing of the compliance obligations and whether the scheme is tradeable or not.[231]

The Conservation Council of South Australia consider that there should be reforms to promote competition between GreenPower and standard grid electricity, with this being included in regulated retail prices.[232] Current regulated retail prices do not impose obligations on retailers to offer GreenPower, or specify how GreenPower should be priced.[233] In providing this advice, the Commission has focussed on the most common types of products covered by retail price regulation, and so has not considered the less common elements such as GreenPower.

EnergyAustralia made a number of detailed comments on the calculation of each of the individual jurisdictional schemes.[234] As the Commission has expressed above we consider it difficult to specify a national approach. We consider that the criteria developed above are sufficient to establish efficient jurisdictional scheme costs in regulated retail prices.

7.3.3 Commission's recommendations

Where jurisdictional-specific environmental schemes apply, the regulator should be guided by a set of criteria in estimating these cost components. The criteria are:

- provided there is sufficient liquidity, market based methods for estimating prices are preferred;
- the most up to date and accurate information should be used, eg quantities from actual regulations; and
- the method should be clear and transparent to retailers, in order for retailers to effectively manage risks associated with the schemes, and to minimise under/over recovery.

231 These factors are consistent with those expressed by Alinta Energy. See: Alinta Energy, Issues Paper submission, p. 6.

232 See: Conservation Council of South Australia, Issues Paper submission, p. 1.

233 See: www.greenpower.gov.au.

234 See: EnergyAustralia, Issues Paper submission, p. 21.

8 Form and Timing of Price Controls

Summary of this chapter

The Commission considers that regulated retail prices should be set through a building block approach, which aims to create a cost stack of efficient costs that retailers incur in supplying electricity.

The Commission also considers that regulated retail prices should be adjusted over time through a weighted average price cap method. This provides flexibility to retailers to rebalance and restructure tariffs in order to manage risks, and in the face of competition.

However, if the retail market is monopolistic in nature, and there are no time of use network charges, then a price control should be used, where cost reflective individual prices are set.

Lastly, the Commission considers that regulated retail prices should be set for a three year determination period. However, there should be annual reviews and cost pass throughs throughout this period in order to ensure that any unanticipated costs are managed.

This chapter outlines issues relating to the form and timing of price controls. In particular issues relating to:

- the form of regulation, ie the method for setting regulated prices is discussed in section 8.1;
- how regulated prices can be restricted is discussed in section 8.2; and
- the length of the determination period, including whether there are annual reviews or cost pass throughs, is discussed in section 8.3.

8.1 Form of regulation

8.1.1 Method for setting regulated prices

Setting regulated prices refers to the overarching method that is used to determine the level of regulated retail prices. There are two general methods used by regulators to determine regulated prices: a building block; or a cost index approach.

Building block approach

The building block approach is also known as an N+R cost build up approach. This approach seeks to create a cost stack of efficient costs that retailers incur in supplying electricity. Under a building block approach the regulator determines the regulated price as the sum of the individually determined efficient cost components, such as

those discussed in chapters 3 through 7. The majority of regulators currently adopt this approach.

This approach is similar to that which is applied to network electricity businesses by the AER.

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.

In deriving the index the regulator will include the various cost components, as discussed in the preceding chapters. At each regulatory determination, the regulator estimates the change in the index.

The 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 this component in the overall index. For example, wholesale energy costs comprise around one third of a retail price.[235] Changes in this component have a large influence on the index.

8.1.2 Assessment

The building block approach promotes cost reflectivity and efficiency, since it is based on the regulator's estimates of costs that reflect efficient, real world costs.

The setting of regulated retail prices on this basis minimises the risks to customers, since costs will remain reflective over time, in response to changing market conditions. Each time a retail price determination is made, the regulator estimates the costs based on current market circumstances.

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

A building block approach is more transparent, since retailers and other interested stakeholders can "see" the different cost components, and their associated efficient costs.[236] Further, since this is the same method that is currently applied to network electricity businesses by the AER, it helps to ensure that this method is easily understood.

In contrast, the index based method focuses on measuring changes in the costs of supplying electricity, as opposed to the costs of supply. This method is unlikely to promote cost efficiency and reflectivity. Even if prices are cost efficient and reflective to start with, it is unlikely that this would be maintained over time.

An index based approach may work well where it is used to regulate the entire customer base, but it is unlikely to work well where it is only applying to a subset of customers. For example, typically, there are multiple regulated prices, which are adjusted by reference to one index. Unless prices for small residential customers, time of use customers, and commercial customers all increased uniformly, price reflectivity would deteriorate.[237]

Accordingly, an index based approach may also increase risks to retailers. This is particularly true if an index approach is combined with a price control, as discussed in section 8.2.2 below, because over time under the index approach individual prices will become less and less cost reflective. If the retailer has competitors then this will result in the retailer losing market share where prices are too high and making losses where prices are set too low.

Further, an index based method is not as transparent or easily understood as the building block method. This is since the cost components cannot be easily "seen". While the regulator has to calculate the cost components to estimate the index change, the end adjustment seen by customers is by reference to an index, and not the underlying costs.

Since the index based method focuses on measuring changes in costs, as opposed to efficient, real world costs the administrative burden for regulators is minimised. This is since only changes in costs (as opposed to the efficient costs) need to be estimated. This does not offset the disadvantages of this approach as detailed above.

8.1.3 Commission's recommendations

Regulators should use a building block (or N+R) approach in determining regulated retail prices. This determines regulated retail prices based on the sum of the network

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236 This view was supported by EnergyAustralia. See: EnergyAustralia, Issues Paper submission, p. 23. Origin Energy also supported the use of a building block approach. See: Origin Energy, Issues Paper submission, p. 6.

237 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.

costs (or "N"), plus the retail costs (or "R"), with this forming the basis for the regulated price.

8.2 Methods for adjusting prices

8.2.1 Context

Regulators need to decide how the actual prices should be set, and adjusted over time.

There are a number of considerations when deciding on the method used to set retail regulated 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.

Greater flexibility in how retailers can set prices may lead to better risk management for retailers. Retailers can better manage costs, in response to risks that result from changing market conditions. One example of changing market conditions is the increased take up of time of use regulated retail prices, which is likely to occur over the next few years and which was discussed in chapter 4. This has specific implications for the method used to set prices.

Currently, load profile assumptions are made in setting regulated retail electricity prices. Making an assumption regarding the load profile could become more difficult with increased take up of time of use network pricing. As time of use prices become more popular, customers adjust their consumption to changes in prices, and so the load profile is like to change. This may create cost recovery risks for retailers. These changes may be material, given the difference between load profiles for customers on time of use prices, and customers on non-time of use prices.[238]

It is likely that the proportion of customers on time of use prices will increase significantly over the next few years. The method for setting prices should take this into account, with this considered below. The risk with changing load profiles will diminish over time as customer responses become more predictable.

238 The AEMC's Power of choice review recommended that where customers have an interval meter, retailers should settle wholesale costs based on the individual customers' load profile. This is in contrast to current practice, where retailers' typically settle on the net system load profile (in part this is driven by jurisdictional meterology arrangements).

8.2.2 Methods

There are two main methods for restricting the prices that a retailer can charge, where competition is developing: price control or weighted average price cap.[239]

Price control

Under a price control approach, individual prices are set by the regulator at the start of the regulatory determination period. This includes the regulator setting what are the variable and fixed components of the price.

The regulated business must charge no more than these prices to customers.

Weighted average price cap

Under the weighted average price cap 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.[240] 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.

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. Side constraints tend to only apply to the overall price, not to individual components.

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239 Tasmania applies a revenue cap approach in order to regulate retailers. This is where a cap is placed on revenue that the business is allowed to earn in a given year. The regulated business must ensure that the total earned in a given year, is less than or equal to the maximum allowed revenue. The Commission considers that this approach would only be feasible, where the retailer has monopolistic characteristics.

240 Separate baskets can also be set, based on different types of customers for example.

8.2.3 Assessment

A weighted average price cap best allows retailers to effectively respond to changing market conditions, since prices can be rebalanced over time. For example, a retailer can rebalance its tariffs in order to minimise cost recovery risk that may result from a change in load profile, as a result of increased take up of time of use prices.

If there are time of use network prices in the market, a weighted average price cap should be used since it best allows retailers to manage cost recovery risks that may result from changes in load profiles through rebalancing tariffs.

Further, in the presence of competition, a weighted average price cap provides incentives for retailers to set reflective and efficient prices, and so promotes competition. If a retailer sets a particular price above the efficient cost reflective level then they will lose market share. As this is in part a process of discovery for retailers it is important that they have the flexibility to respond to customer choices.

One limitation with a price control approach is that in markets where competition is developing, setting individual prices does not provide flexibility for retailers to rebalance prices and try and attract customers, and so increase competition in the market. The benefits from creating flexibility are not realised unless there are at least two retailers within the market.

Incentives to set cost efficient prices are not as strong in the absence of competition. Weighted average price caps do not promote cost reflectivity when there are monopolistic arrangements in the market. In the absence of competition, retailers have incentives to change prices in response to how demand for different prices are growing or declining, in order to maximise revenue. This does not provide any efficiency benefits, and no significant improvements to cost reflectivity. Similarly, a revenue cap does not promote cost reflectivity where there are monopolistic arrangements.

In contrast, a price control approach attempts to set cost reflective prices – even in the absence of competition. This is since individual prices are being set by a regulator, with this aim in mind. This is subject to the level of information asymmetries that exist between the retailer and the regulator. A competitive market is better able to establish cost reflective prices than a regulator.

The appropriate form of regulation in the absence of time of use network charges differs depending on the underlying characteristics of the market. In markets that are more competitive, providing retailers with flexibility to rebalance prices under a weighted average price cap is likely to result in cost reflective and efficient prices.[241]

241 This is largely consistent with our recommendations in our advice on differences between actual and forecast demand in network regulation. The Commission considered that the AER should retain the option to consider the best control mechanism (between a revenue cap and a weighted average price cap) at the time of each revenue determination. However, the weighted average price cap was generally considered to be more suitable for distribution businesses, since this provides incentive for price flexibility. See: AEMC, *Consideration of Differences in Actual Compared to Forecast Demand in Network Regulation*, Advice to SCER, 26 April 2013.

In markets supplied by a single retailer or with limited competition, it is more preferable that the regulator 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 in order to improve cost reflectivity and so customer outcomes.

There are both fixed and variable components of the regulated retail price. The AEMC considers that fixed costs should be reflected in the fixed component, and variable costs in the variable component. This helps to increase efficiency, and provide signals to customers about their costs of electricity supply.[242] The allocation between fixed and variable components may be easier to achieve for some cost components than others.

Ultimately, the exact allocation of costs should be left to the discretion of:

- the retailer, under a weighted average price cap form of regulation; and
- where there is limited competition in the retail market, the regulator, under a price control form of regulation.

A weighted average price cap form of regulation was supported by all submissions that commented on this issue.[243] This is since it better allows retailers to manage their risks, and also minimises administrative costs for jurisdictional regulators.

ActewAGL Retail considered that side constraints should not be used, since they run counter to cost-reflectivity and can limit development of innovation by retailers and so competition.[244] The Commission considers that side constraints seek to minimise changes for any one particular customer segment in a given year. These may therefore be used, if the jurisdiction (or regulators) considers these are appropriate.

8.2.4 Commission's recommendations

If there are time of use network prices that are included in the regulated retail price (see recommendations discussed in chapter 4), then prices should be set under a weighted average price cap. This should occur regardless of the state of competition in the retail market.[245]

If there are no time of use network prices that are included in the regulated retail price, then the method of setting prices should reflect the level of competition in the retail market.

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242 This view was also expressed by EnergyAustralia. See: EnergyAustralia, Issues Paper submission, p. 24.

243 See: ActewAGL Retail, Issues Paper submission, p. 3; AGL, Issues Paper submission, p. 6; EnergyAustralia, Issues Paper submission, p. 23; Origin Energy, Issues Paper submission, p. 6.

244 See: ActewAGL Retail, Issues Paper submission, p. 3.

245 In Queensland *all* retailers are obliged to supply customers on regulated retail tariffs. We do not consider that this policy approach would raise any issues with the use of a weighted average price cap form of regulation.

If the retail market is considered to be competitive, or is moving towards competition, then a weighted average price cap should be used, promoting flexibility and so facilitating efficient prices through competition. If the retail market is monopolistic in nature then a price control should be used, where reflective individual prices are set.

8.3 Length of determination

8.3.1 Context and methods

Retail electricity price determinations in NEM jurisdictions currently range between one year in Queensland[246] to three years in NSW and Tasmania. The decision on the length of the determination period is made by the jurisdictional government and set out in its terms of reference to the regulator.

Generally where determinations cover multiple years, annual reviews of some cost components are included. Annual reviews typically reassess those cost components affected by market volatility, such as wholesale and environmental scheme costs. These annual reviews provide a degree of stability and predictability for retailers, assisting them in reducing cost recovery risks which would otherwise be passed through to customers. At the same time as these annual reviews, the network cost component is typically updated to reflect the most recent network costs as published by the distribution businesses.

If the determination period is longer than one year, then retail operating costs also need to be adjusted over time, as discussed in section 5.1.3. Wholesale and environmental costs are recalculated in annual reviews. The retail margin is not typically reviewed or adjusted over time. This likely reflects the reality that the retail margin is calculated as a percentage of total costs. To the extent that costs change over the period, the monetary value of the retail margin will also change.

Finally, there may also be a need to include some mechanism to account for unexpected, uncontrollable and significant changes in a retailer's costs, which may not have been factored into a retail price determination or annual review. Regulators generally allow for a cost pass through mechanism to take these into account.

8.3.2 Assessment

Length of determination

The length of the determination period has implications for the incentives that a retailer faces. Longer periods create stronger incentives for retailers to operate more efficiently, since retailers retain any difference between the regulated price and their costs as profits or losses. Further, longer periods provide certainty for retailers,

246 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.

promoting predictability and stability. This is since retailers will know on what basis regulated retail prices will be set for a longer period of time.

A longer period also increases the risks that a retailer may not be able to fully recover its costs, particularly if there is a change in government policy or additional regulatory requirements are imposed on the retailer. Costs a retailer faces may change over the determination period, resulting in the retailer either over- or under-recovering costs. If under-recovery occurs over an extended period of time, then retail under-investment may occur to the detriment of customers.

The decision on how long a retail price determination should last for represents a balance between providing:[247]

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

Ultimately, the balance between these two competing factors represents a judgement call by a regulator as to what it considers to be most important in its pursuit of the objective.

The Commission considers that, given the large benefits from incentivising retailers, a longer period should be used. Three years has been decided on since it is a timeframe already used by some regulators, and so reduces policy uncertainty and administrative costs.

A three year determination period was supported in submissions to the Issues Paper.[248] ActewAGL Retail supported a three year determination period.[249] Alinta Energy considered that prices should only be set for a year, due to the administrative costs associated with annual reviews and re-openers that occur under longer periods.[250]

Further, the Commission considers that the potential risks associated with a longer determination period are likely to be mitigated where there is an annual review process in place to reassess large and volatile cost components. This is discussed below. Retailers consider that it is important that the methods for these annual reviews,

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247 This trade-off was commented on in ActewAGL Retail's submission. Shorter regulatory periods alleviate the problem of market changes over time and allow flexibility, but at the cost of increased uncertainty for retailers and customers. On the other hand, longer regulatory control periods create certainty of approach, but leave electricity retailers in the short term and customers in the long term carrying the risk of inappropriate regulatory settings. See: ActewAGL Retail, Issues Paper submission, p. 7.

248 See: Momentum Energy, Issues Paper submission, p. 2; AGL, Issues Paper submission, p. 6.

249 See: ActewAGL Retail, Issues Paper submission, p. 7.

250 See: Alinta Energy, Issues Paper submission, p. 6.

and cost pass throughs are transparent.[251] The Commission agrees, which is why these components are discussed in detail below.

Annual reviews

All jurisdictional regulators currently include annual reviews of those components that are subject to irregular and significant change.

The inclusion of an annual review means that the regulated retail prices are more likely to promote cost reflectivity and flexibility. It also means that retailers have confidence in being able to manage these risks.

The AEMC considers that annual reviews increase the administrative burden for the regulator, and reduce incentives for efficiency since retailers cannot retain cost savings. The risks to a retailer if annual reviews are not included are large. For example, the wholesale energy market is very volatile, with prices potentially ranging from -$1,000/MWh to $13,100/MWh. This could result in large changes in costs for retailers.

Since a longer determination period has been recommended it is also important to provide some certainty to retailers regarding these cost components to continue to encourage retail investment that is beneficial to customers. The Commission considers that cost components that have the following characteristics should be subject to annual review:

- subject to both regular and significant change; and
- have fluctuations which are beyond the reasonable control of retailers.

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. In practice, this would mean that regulators would undertake annual reviews of: wholesale energy costs, LRET/SRES costs, and jurisdictional and environmental schemes.[252,253]

The need for annual reviews decreases if a firm commitment to remove regulated retail prices has been made by the jurisdictional government. For example, the review of energy purchase costs is a large exercise, completed in order to minimise risks to retailers. However, if the jurisdictional government has announced that regulated

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251 See: Momentum Energy, Issues Paper submission, p. 3.

252 This is consistent with the components that EnergyAustralia consider should be reviewed annually. EnergyAustralia also consider that network costs should be reviewed; however, we consider that these will be specified as a defined cost pass through event, as discussed below. See: EnergyAustralia, Issues Paper submission, p. 25.

253 While annual reviews of energy purchase costs may dampen the ex ante incentive effects, we consider that there will still be sufficient incentives. Further, the high risk of wholesale prices being different to those allowed under the regulated retail price suggests that these should still be considered.

prices will be removed in the near term, then a more light-handed annual review can be undertaken, since the risks faced by retailers will be smaller.

Cost pass throughs

Cost pass throughs allow unexpected, uncontrollable and significant changes in retailer's costs to be passed through to customers. These should be for events that are beyond the retailer's control.[254] Currently, all regulators allow for cost pass through events. The use of cost pass throughs increase predictability and stability for retailers, better enabling them to manage risk. This is since risks are allocated to customers under cost pass throughs. To the extent that an unforeseen cost arises, customers will bear these costs.

Use of cost pass throughs reduce the incentive on retailers to manage or mitigate the risks associated with the occurrence of these events, since if they have improved certainty they will be able to recover the cost impact through the pass through mechanism.[255]

Therefore, cost pass throughs should only be permitted for those costs that retailers can't avoid, manage, insure against or mitigate.

Cost pass through categories should be defined and so creating transparency.[256] In particular, any changes in network costs that occur each year when network businesses set their prices should be included as a defined pass through event.[257] Other events should be considered on a case by case basis, but with categories defined prior to the regulatory period commencing.

A series of principles can be considered by regulators and retailers, when considering whether an event qualifies for a pass through or not. These principles include the following:

- events should be significant, exogenous, unforseen and unavoidable;
- events should not already have been provided for through other means; and

254 This is consistent with a number of retailer's views. See: ActewAGL Retail, Issues Paper submission, p. 6; EnergyAustralia, Issues Paper submission, p. 26; and Origin Energy, Issues Paper submission, p. 6.

255 EnergyAustralia disagree with this conclusion. See: EnergyAustralia, Issues Paper submission, p. 26.

256 Simply Energy considers there should be transparent triggers for re-opening a retail price path. Maintaining an established regulatory price path creates regulatory certainty about the future operating environment providing confidence to invest and grow. See: Simply Energy, Issues Paper submission, p. 2.

257 The need for pass through of network costs was also highlighted in submissions. See: ActewAGL Retail, Issues Paper submission, p. 6.

- events should have a material impact on retailers and/or customers, that is not offset by the increased administrative cost for the regulator.[258]

Providing a specific list of categories to retailers provides them with a degree of certainty about what costs they can recover. Retailers suggested some categories should be defined in the method such as regulatory and tax change categories.[259] It is important that the list of events that are open for consideration for cost pass throughs is determined by the regulator consistent with the objectives of transparency, efficiency and minimising administration costs.

8.3.3 Commission's recommendations

A retail price determination should cover a three year period. There should be annual reviews of those components that have fluctuations beyond reasonable control of retailers, and that may be subject to regular and significant change.

A cost pass through mechanism should be included. Both regulators and retailers should be able to initiate a pass through review, allowing both increases and decreases in costs to be passed through to customers.

Changes in network costs should be listed as a defined pass through event. Other events should be considered on a case by case basis, but with categories defined prior to the regulatory period, eg regulatory change or tax events. In considering whether an event constitutes a cost pass through, the regulator should be guided by the following series of principles:

- events should be significant, exogenous, unforseen and unavoidable;
- events should not already have been provided for through other means; and
- events should have a material impact on retailers and/or customers, that is not offset by the increased administrative cost for the regulator.

258 EnergyAustralia consider that a materiality clause is not necessary when the price change can only be made from the start of the next pricing year. This is since the administrative costs for regulators and retailers are considerably less if cost pass through reviews and price updates are made concurrently with the annual pricing review. See: Energy Australia, Issues Paper submission, p. 26.

259 Momentum Energy also expressed that movements in the price of the environmental changes should be included. The Commission considers that the true-up mechanism, as detailed in section 7.2.6 would address this concern. See: Momentum Energy, Issues Paper submission, p. 3. ActewAGL Retail also shared this view. See: ActewAGL Retail, Issues Paper submission, p. 6.

A Summary of submissions

This appendix sets out a summary of the issues raised in submissions on the best practice retail price regulation method issues paper and the AEMC's response to the issues raised. Note where stakeholder views were broadly similar they have been grouped together.

Table A.1 Summary of submissions on the issues paper

Issue raised	Stakeholder	AEMC response
Approach		
The proposed approach is appropriate.	AGL, p. 12; EnergyAustralia, p. 5; Energex, p. 1.	Agreed.
The approach in Western Australia and Northern Territory may differ from the approach used in the NEM.	EnergyAustralia, p. 5.	Agreed.
The AEMC's advice should focus on principles, rather than prescriptive methods.	Energy Retailers Association of Australia, p. 2; IPART, p. 1; Lumo Energy, p. 1; Momentum, p. 1; Origin Energy, p. 8.	Agreed. See section 2.1 for further discussion.
Since the AEMC was first asked to provide this advice there have been a number of developments in retail price regulation policy.	Energy Retailers Association of Australia, p. 1; Momentum, p. 1; Origin Energy, p. 4.	Agreed. See section 2.1 for further discussion.
The advice should be reviewable over time, enabling stakeholders to provide feedback on its ongoing suitability.	EnergyAustralia, p. 23; Energy Retailers Association of Australia, p. 2; Momentum, p. 1.	This advice has been provided by the AEMC under the terms of reference given to us by SCER on 9 May 2013. The ongoing review of this method is a matter for SCER to decide upon. See section 1.5 for further discussion.

Issue raised	Stakeholder	AEMC response
Concerned that retailers will not have an opportunity to comment on the Commission's draft recommendations.	ActewAGL Retail, p. 2; AGL, p. 4; Alinta Energy, p. 2.	Under the terms of reference given to us by SCER on 9 May 2013, the timeframes for this advice are limited. However, the AEMC recognises the importance of engaging with a wide variety of stakeholders, and so prepared an Issues Paper for wider consultation.
The AEMC should clarify that advice stemming from this review should not preclude any jurisdictional efforts already underway to remove price regulation.	ActewAGL Retail, p. 2.	Agreed. The Commission has highlighted that this advice only applies to those jurisdictions with retail price regulation. Further, the objective of this advice includes the facilitation of competition in retail markets.
There could be benefits for both customers and industry from the adoption of a consistent framework.	EnergyAustralia, p. 4.	Agreed. See section 1.1.1 for further discussion.
The role of price regulation in different types of market should be acknowledged.	AGL, p. 4.	The Commission recognises that there are different retail market characteristics in the jurisdictions. The Commission's principles based approach for setting regulated retail prices allows regulators to take account of the circumstances in their jurisdiction.
Concerned there is no discussion of potential unintended consequences.	AGL, p. 4.	The Commission considers that retail price regulation should only be applied where competition is not possible, or where competition is not sufficiently developed to protect customers interests. See section 2.1 for further discussion. The Commission also notes the importance of maintaining predictability and stability in the approach used for setting regulated retail prices. Consideration of any move towards our recommended approach to regulated retail price setting should balance the advantages against the need to maintain predictability. The Commission does not consider for example, that jurisdictions that are currently in the middle of a regulatory price determination period should change the method for setting regulated retail prices midway through the period.

Issue raised	Stakeholder	AEMC response
Questioned whether a national approach to price regulation will have the potential to lead to lower prices for customers.	AGL, p. 10.	The Commission considers that a nationally consistent and stable method promotes stability and transparency in the setting of regulated retail prices. This will likely flow through into lower prices for customers. See section 1.1.1 for further discussion.
Scope		
Retail price regulation cannot protect customers from price increases, nor can it protect vulnerable customers. These customers should be specifically considered, and targeted responses developed.	IPART, p. 2.	Agreed. See section 2.2 for further discussion.
A best practice method should also address any "supply or demand side barriers" that may constrain the development of competition.	IPART, p. 2.	The Commission considers these are policy questions for jurisdictional governments. The AEMC's reviews on the effectiveness of competition may inform jurisdictional governments on these barriers.
It may be useful to include solar feed-in tariffs in scope, when these tariffs are also regulated.	EnergyAustralia, p. 5.	In providing this advice, the Commission has focussed on the most common types of products covered by retail price regulation, and so has not considered less common elements, such as solar feed-in tariffs.
Energy affordability considerations should be addressed through transparent community service obligations as opposed to retail price regulation.	Momentum, p. 1.	The Commission considers that affordability concerns are policy questions for jurisdictional governments. See section 2.2 for further discussion.
Regulated retail prices should enable retailers to meet their statutory requirements regarding service quality.	Queensland Consumers Association, p. 2.	The Commission considers that this would be considered by regulators in the setting of cost components, such as the retail operating cost allowance.

Issue raised	Stakeholder	AEMC response
Objective		
Support fully deregulated markets, where competitive is effective.	Alinta Energy, p. 1; EnergyAustralia, p. 4; Energy Retailers Association of Australia, p. 1; Lumo Energy, p. 1; Origin Energy, p. 4; Simply Energy, p. 1.	Agreed. See section 2.3 for further discussion.
Supportive of objective.	Conservation Council SA, p. 1; Energex, p. 1.	The Commission has taken these views into account.
Consider that the long-term interests of customers include sustainability matters.	Conservation Council SA, p. 1.	The Commission considers that matters relating to sustainability are beyond the AEMC's remit, and so are not discussed in this review. See section 2.2 for further discussion.
The objective should balance the long and short-term interests of customers, with the weight given to these differing across jurisdictions.	IPART, p. 1.	Agreed. See section 2.3 for further discussion.
The second line of the proposed objective should not be included. The first line of the proposed objective is sufficient.	ACT Government, pp. 1-2.	The Commission does not agree with this proposal. See section 2.3 for further discussion.
The proposed objective should explicitly refer to the aim to progress to full deregulation of retail pricing.	EnergyAustralia, p. 5.	The Commission considers that this is a matter to be decided by jurisdictional governments, and so should be expressed accordingly. See section 2.3 for further discussion.
The objective should read "in promoting the long-term interests of customers".	AGL, pp. 5 and 13.	Agreed. The objective has been changed in order to reflect this revised wording.

Issue raised	Stakeholder	AEMC response
Proposed objective contains mutually exclusive propositions that cannot be reconciled.	Simply Energy, p. 2.	The Commission considers that in certain circumstances it may be difficult to reconcile these propositions. However, in the majority of circumstances the Commission considers that these can be reconciled. See section 2.3 for further discussion.
Regulated retail prices should act as a "safety net" protecting those customers who are not sufficiently informed to switch to a more competitive market offer, while at the same time providing headroom.	Simply Energy, p. 2.	The Commission acknowledges that affordability issues are an important matter to consider when reviewing the operation of a market. These issues are better addressed through appropriately targeted policies, rather than through the setting of the regulated retail price.
The word coherent is not sufficiently precise since it has many meanings.	Queensland Consumers Association, p. 1.	Agreed. The word coherent has been modified.
The latter half of the objective should be: "facilitate the development of effective competition in retail electricity markets, where competition may be feasible and beneficial."	Queensland Consumers Association, p. 2.	While the Commission considers that competition in general is beneficial for the long-term interests of customers, deciding upon whether there are specific circumstances in which competition may not be beneficial (eg for certain groups of customers) is a matter for jurisdictional governments to decide upon.
The objective may be better achieved through price deregulation.	Alinta Energy, p. 3.	The Commission considers that this may be the case in some circumstances. However, this is a matter for jurisdictional governments to decide upon. See section 2.3 for further discussion.
The objective should aim to promote recovery of efficient costs.	AGL, p. 14.	Agreed.
The AEMC should set out what is meant by the "development of competition".	ActewAGL Retail, p. 2.	The Commission consider that the facilitation (or development) of competition refers to minimising the impediments to the retailers and consumers increasing their confidence and participation in the market.

Issue raised	Stakeholder	AEMC response
Suggest removal of the words "where competition may be feasible" in the objective.	ActewAGL Retail, p. 3.	The Commission views the facilitation of competition as a means of delivering long-term benefits to customers. See section 2.3 for further discussion.
Price regulation should support competition, and not impede its development.	ACT Government, p. 1.	Agreed. See section 2.3 for further discussion.
The continuation of price regulation under a "best practice" nationally consistent framework can distort the competitive market.	IPART, p. 1.	These interactions between regulated retail prices, and competition, need to be considered. This is reflected in the objective of regulated retail prices.
Any recommended price regulation method, which is applicable to a competitive retail market needs to ensure it would not damage competition.	AGL, p. 9.	These interactions between regulated retail prices, and competition, need to be considered. This is reflected in the objective of regulated retail prices.
Principles		
Supportive of all principles.	AGL, p. 15; Energex, p. 1; Energy Australia, p. 6; Etrog Consulting, p. 8.	Agreed.
Supportive of principles 3, 4, 5, 6 and 7.	Simply Energy, p. 2.	Agreed.
The principle of cost efficiency needs to be clearly defined.	AGL, p. 15.	Agreed. The Commission has defined cost efficiency in section 2.3.2. Specifically, 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.

Issue raised	Stakeholder	AEMC response
Principle 6 (minimising administrative burden) should be considered in context. Issues with the approach undertaken by regulators have driven up administrative costs.	EnergyAustralia, p. 6.	The Commission notes that this is an important consideration, and emphasises the importance of the transparency principle in this context.
Do not support principles 1 and 2 (cost efficiency and cost reflectivity).	Simply Energy, p. 2.	The Commission considers that both the principles of cost efficiency and cost reflectivity are important, and so should be included. See section 2.4 for further discussion.
Transparency should also apply to data and information.	Etrog Consulting, p. 8.	Agreed.
The development of competition should also be an explicit principle.	AGL, p. 15; Origin Energy, p. 9.	The Commission consider that the development of competition is covered by the operation of the objective and the other principles, in particular the long-term focus on cost efficiency and reflectivity.
Wholesale energy costs		
Wholesale energy costs are one of the most significant sources of regulatory risk for regulated electricity retailers.	ActewAGL Retail, p. 5.	Agreed.
Wholesale energy costs should be determined as the higher of the LRMC or the forward market contract price.	AGL, p. 5; EnergyAustralia, p. 7; Energy Retailers Association of Australia, p. 2; Momentum, p. 2; Simply Energy, p. 3.	The Commission does not consider that this an appropriate method to be used in setting energy purchase costs. See section 3.2.3 for further discussion.
The greenfields method is the most appropriate LRMC approach to use.	Alinta Energy, p. 5; EnergyAustralia, p. 8; Origin Energy, p. 10.	The Commission does not consider that this an appropriate method to be used in setting energy purchase costs. See section 3.3.1 for further discussion.

Issue raised	Stakeholder	AEMC response
Any market modelling approach needs to address the regulatory risk and uncertainty imposed by the use of a modelling approach. There needs to be a commitment to a method and explanation well ahead of a decision.	ActewAGL Retail, p. 6.	Agreed. See section 3.4 for further discussion.
A model should be developed that retailers can replicate using own in-house models.	EnergyAustralia, p. 12.	The Commission considers that if modelling was to be utilised this would be ideal. However, a regulator would have to weigh up the costs of developing a model against the benefits transparency provides. The Commission also considers that in the absence of the full model being made publicly available, methods could be more clearly specified by regulators, eg set out in a technical paper.
LRMC methods are highly dependent on input assumptions. Suggest these inputs are formally included in the best practice method.	EnergyAustralia, pp. 8-9.	The Commission has developed a principles based method and so does not consider this level of detail to be appropriate to this approach. The Commission considers it is important that input assumptions are clearly set by regulators in order to enhance transparency.
Guidelines should be established on the setting of each component.	EnergyAustralia, p. 9.	The Commission considers that since we have developed a principles based method, this is a matter for jurisdictional governments and regulators to decide upon guided by the recommended objective and principles. See section 3.3.2 for further discussion.
Method for calculating a load profile should be specified as part of the best practice regulated retail price method.	EnergyAustralia, p. 9.	The Commission considers that since we have developed a principles based method, this is a matter for jurisdictional governments and regulators to decide upon guided by the recommended objective and principles.
A model should assume that a retailer has layered in hedge cover over the short, medium and longer-term through a mix of contracts and building or underwriting generation.	Alinta Energy, p. 4.	The Commission considers that since we have developed a principles based method, this is a matter for jurisdictional governments and regulators to decide upon guided by the recommended objective and principles.

Issue raised	Stakeholder	AEMC response
The carbon price assumption should be properly representative of the costs that retailers face. It should be determined based on the Australian Financial Markets Association Carbon Benchmark Addendum clause.	EnergyAustralia, p. 11.	The Commission considers that since we have developed a principles based method, this is a matter for jurisdictional governments and regulators to decide upon guided by the recommended objective and principles.
The method of allocating carbon cost pass through costs to customers and the transparency of doing so has not yet been properly addressed in regulation methods.	Conservation Council SA, p. 2.	Carbon costs form part of the wholesale energy purchase cost allowance. The Commission considers that it is important that the assumptions associated with the estimation of this allowance, which include those associated with carbon costs, should be clearly specified to promote transparency.
Time of use wholesale pricing creates risks.	EnergyAustralia, p. 14.	Agreed. The Commission considers that the offering of time of use wholesale energy prices will create risks for retailers. However, retailers, provided the appropriate metering infrastructure is in place, should be able to offer time of use wholesale energy charges if they are willing to bear the risks associated with this.
A time of use wholesale energy charge should be applied by retailers and included.	Energex, p. 1.	Time of use wholesale prices could provide further signals to customers about the most efficient use of the network. Retailers, provided the appropriate metering infrastructure is in place, should be able to offer time of use wholesale energy charges if they are willing to bear the risks associated with this.
Contract liquidity should be considered as part of any determination.	Momentum, p. 2.	Agreed. See section 3.5 for further discussion.
Support the use of re-openers in wholesale energy cost component to take account of volatility.	Momentum, p. 2.	The Commission considers that the wholesale energy cost allowance should be subject to an annual review since it is subject to irregular and significant change. See section 8.3 for further discussion.
Broadly support the inclusion of a volatility allowance.	EnergyAustralia, p. 10; Origin Energy, p. 10.	See section 3.6.1 for further discussion.

Issue raised	Stakeholder	AEMC response
Broadly support the inclusion of a prudential cost allowance.	EnergyAustralia, p. 10; Origin Energy, p. 10.	See section 3.6.1 for further discussion.
Supportive of the proposed approach for estimating NEM market fees.	AGL, p. 21.	See section 3.6.2 for further discussion.
Ancillary service fees should be based on the previous year's actual costs, instead of a rolling average.	EnergyAustralia, p. 12.	This is consistent with our recommendation on this cost component.
Supportive of the proposed approach for estimating ancillary service fees.	AGL, p. 21.	See section 3.6.3 for further discussion.
Supportive of the approach to calculate energy losses.	AGL, p. 21.	See section 3.6.4 for further discussion.
Network costs		
Current arrangements do not leave adequate time for retailers to integrate network prices.	Origin Energy, p. 5.	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. See section 4.4 for further discussion.
Assumptions made by the distributor in setting network prices can materially impact on the setting of regulated retail prices and can lead to unexpected or undesirable outcomes.	EnergyAustralia, p. 13.	The Commission considers that retailers should have the flexibility to set prices as they consider appropriate, reflecting the level of risk that they are willing to bear. See section 4.2 for further discussion.
Time of use network prices should be passed through in setting regulated retail prices.	AGL, pp. 22.	Agreed. See section 4.3 for further discussion.

Issue raised	Stakeholder	AEMC response
The AEMC should be guided by Chapter 6 of the NER. The network tariff structure and price signals should be preserved in the final retail price.	Energex, p. 1.	The Commission consider that retailers should have the flexibility to set prices as they consider appropriate, based on the level of risk they are willing to bear. See section 4.1 for further discussion.
Retail operating costs		
Using a standard retailer approach for estimating retail operating costs is beneficial.	EnergyAustralia, p. 15.	This is consistent with our recommendation on this cost component.
The retail operating costs should reflect new entrant costs or second tier firms in order to encourage competition.	ActewAGL Retail, p. 4; AGL, p. 5; Alinta Energy, p. 5; EnergyAustralia, p. 15; Momentum, p. 2.	Retail operating costs should not include an allowance to facilitate competition (if competition is deemed to be feasible). A separate competition allowance should be set. See section 5.1.1 for further discussion.
Wherever possible, retail operating costs should be estimated based on efficient actual costs, and there should be built in incentives for productivity improvements.	Queensland Consumers Association, p. 2.	Retail operating costs only comprise seven per cent of the regulated retail price, and so any incentives to engage in productivity enhancements are likely to have a limited effect. See section 5.1.2 for further discussion.
Retail operating costs should be based primarily on data gained from retailers.	Origin Energy, p. 12.	The Commission agrees that retail operating costs should be based primarily on data gained from retailers. However, other methods (eg benchmarking) may also be used to assist in estimating retail operating costs. See section 5.1.2 for further discussion.
Benchmarking should be used, but should not be the only method.	EnergyAustralia, p. 15.	Agreed. See section 5.1.2 for further discussion.
Benchmarking may not fully reflect current business practices and conditions. However, it is useful in assessing the possible range of retail operating costs.	AGL, p. 23.	Agreed. See section 5.1.2 for further discussion.

Issue raised	Stakeholder	AEMC response
Broadly agree that benchmarking should be used to calculate retail operating costs, but notes that the issue of economies of scale is particularly relevant under a benchmarking approach.	ActewAGL Retail, p. 5.	The Commission considers that retail operating costs should be based primarily on data gained from retailers. However, other methods (eg benchmarking) may also be used to assist in estimating retail operating costs. See section 5.1.2 for further discussion.
CPI is appropriate to escalate retail operating costs, if there are no step changes in costs.	EnergyAustralia, p. 16.	The Commission considers that costs should escalated using a forecast of CPI. See section 5.1.3 for further discussion.
Retail operating costs should be escalated broadly by CPI, but allow the regulator to take into account specific drivers of costs that have grown faster than CPI. Productivity improvements should not be included.	Origin Energy, p. 12.	The Commission agree that retail operating costs should be escalated by CPI. However, the Commission considers that the use of cost pass throughs will likely mitigate the need for the regulator to take into account specific drivers of costs that have grown faster than CPI. See section 5.1.3 for further discussion.
Retail margin		
A degree of discretion is required by the regulator in estimating a retail margin.	AGL, p. 24.	Agreed. See section 5.2.3 for further discussion.
Regulators should be able to apply a range of methods in estimating a retail margin, but should adopt estimates that sit towards the higher end of the range of values identified.	Origin Energy, p. 13.	The Commission is mindful of imposing on regulators prescriptive rules to be used when calculating a retail margin. Therefore, the Commission has developed a framework that guides the regulator in setting the retail margin. See section 5.2.4 for further discussion.
A retail margin should consider all types of risks faced by the retailer.	EnergyAustralia, p. 16.	The Commission considers that the retail margin aims to compensate the retailer for systematic or non-diversifiable risks associated with retailing electricity. See section 5.2.1 for further discussion.
A retail margin should be set as a percentage of total costs.	AGL, p. 24; EnergyAustralia, p. 16; Origin Energy, p. 13.	Agreed. See section 5.2.5 for further discussion.

Issue raised	Stakeholder	AEMC response
A retail margin should be set as a percentage of controllable costs.	Queensland Consumers Association, p. 2.	The Commission considers that given the objective of the retail margin is to estimate it in relation to a given level of risk, then the absolute values should be the same whether it is applied to all cost components or only the retailer's controllable costs. See section 5.2.5 for further discussion.
A retail margin should be reapplied each year as a consistent percentage of the total costs.	EnergyAustralia, p. 16.	The Commission considers that if there are annual reviews of costs, then the retail margin should be reapplied as a consistent percentage of these costs. However, the retail margin should not be re-estimated.
Headroom for facilitating competition		
The risks of price regulation are asymmetrical.	ActewAGL Retail, p. 6; AGL, p. 14; Momentum, p. 1.	Agreed. See section 6.2.1 for further discussion.
Headroom should be included.	EnergyAustralia, p. 17; IPART, p. 2; Origin Energy, p. 5; Simply Energy, p. 1.	Agreed, provided that the jurisdiction is trying to facilitate competition. See section 6.2.4 for further discussion.
Headroom should not be included.	Queensland Consumers Association, p. 2.	The Commission considers that the facilitation of competition is a matter for jurisdictional governments to decide upon. However, if jurisdictional governments decide to facilitate competition then some form of headroom should be included in the regulated retail price. See section 6.2.4 for further discussion.
The inclusion of headroom should be transparent.	AGL, p. 25; Origin Energy, p. 13.	Agreed. See section 6.2.4 for further discussion.
Full recovery of customer acquisition and retention costs should be allowed.	ActewAGL Retail, p. 4.	The Commission considers that a competition allowance (commonly referred to as customer acquisition and retention costs) is the most appropriate method to provide headroom in the regulated retail price. See section 6.3.3 for further discussion.

Issue raised	Stakeholder	AEMC response
The absence of customer acquisition and retention costs in the ACT has been a barrier to competition in the retail market.	ActewAGL Retail, pp. 4-5; AGL, p. 25.	Agreed. See section 6.2.3 for further discussion. Work undertaken by the Allen Consulting Group on behalf of the AEMC in the review of effectiveness of competition in the electricity retail market of the ACT found that the absence of customer acquisition and retention costs in ACT regulated prices results in very low retail margins for competing retailer.
Evidence of a link between headroom and observed competition levels.	EnergyAustralia, p. 17.	The Commission considers that the inclusion of headroom, at the very least, does not inhibit competitive markets. See section 6.2.3 for further discussion.
The level of discounts in the market, relative to the regulated retail price, should be taken into account.	AGL, p. 25.	Agreed. See section 6.4.3 for further discussion.
In a competitive market, if regulated retail prices are set too high, then discounting will remove any additional headroom.	AGL, p. 23; Momentum, p. 1.	The Commission considers that it is likely over time prices would be reduced through competition, with competitors entering the market and eroding the higher prices down to efficient cost levels. See section 6.2.1 for further discussion.
Customer acquisition and retention costs should be estimated using the efficient costs of a second tier retailer.	Alinta Energy, p. 5.	The Commission considers that, at least as a starting point, customer acquisition and retention costs should be estimated on this basis. See section 6.4.3 for further discussion.
Large-scale Renewable Energy Target		
A cost-based approach (LRMC) to estimate the cost of certificates is preferred over market based prices.	AGL, p. 26; EnergyAustralia, p. 19; Origin Energy, p. 13.	The Commission considers that, provided there is sufficient liquidity in the market for LRET certificates, futures prices should be used. See section 7.1.5 for further discussion.
Futures market data or LRMC should be used to calculate the cost of certificates.	Alinta Energy, p. 5.	Agreed. However, the Commission consider that the recommended approach should be to use futures market data. See section 7.1.5 for further discussion.

Issue raised	Stakeholder	AEMC response
Small-scale Renewable Energy Scheme		
The clearing house price should be used.	AGL, p. 27; EnergyAustralia, p. 20; Origin Energy, p. 14.	The Commission considers that, provided there is sufficient liquidity in the market for SRES certificates, future prices should be used. In the absence of sufficient liquidity, the clearing house price should be used. See section 7.2.5 for further discussion.
A mix of the clearing house price and penalty price could be used.	Alinta Energy, p. 6.	The Commission considers that, provided there is sufficient liquidity in the market for SRES certificates, future prices should be used. In the absence of sufficient liquidity, the clearing house price should be used. See section 7.2.5 for further discussion.
A holding cost should be included.	EnergyAustralia, p. 20.	The Commission consider that any costs associated with the "holding" of these certificates should be compensated for in the retail margin component.
The risks associated with the timing of this scheme should be addressed.	Momentum, p. 2.	Agreed. See section 7.2.6 for further discussion.
Supports use of a cost pass through mechanism to deal with uncertainty.	AGL, p. 27.	Agreed. See section 7.2.6 for further discussion.
Jurisdictional schemes		
It is not appropriate to specify a best practice national approach to these schemes.	AGL, p. 27; Alinta Energy, p. 6.	Agreed. See section 7.3.3 for further discussion.
In relation to the NSW Energy Savings Scheme, the price should be set at the after-tax penalty price.	EnergyAustralia, p. 21.	The Commission considers that since we have developed a principles based method, this is a matter for jurisdictional governments and regulators to decide upon guided by the recommended objective and principles.

Issue raised	Stakeholder	AEMC response
In relation to the ACT Energy Efficiency Improvement Scheme, the efficient costs and obligations should be considered for both tier 1 and 2 retailers,	EnergyAustralia, p. 21.	The Commission considers that since we have developed a principles based method, this is a matter for jurisdictional governments and regulators to decide upon guided by the recommended objective and principles.
Form and timing of regulation		
The form of regulation must be transparent, consistent and stable.	Alinta Energy, p, 6.	Agreed.
Supports use of a building block approach.	EnergyAustralia, p. 23; Origin Energy, p. 6.	Agreed. See section 8.2.3 for further discussion.
If competition is effective, a lighter-handed form of regulation may be used.	EnergyAustralia, p. 24; Origin Energy, p. 8.	The Commission considers that the form of regulation is a matter for jurisdictional governments. This advice focuses on the setting of regulated retail prices.
A weighted average price cap is the most appropriate form of regulation.	ActewAGL Retail, p. 3; AGL, p. 6; EnergyAustralia, p. 23; Origin Energy, p. 6.	Agreed. See section 8.2.4 for further discussion.
The weighted average price cap should be applied to all cost components.	EnergyAustralia, p. 24.	The Commission considers that if a weighted average price cap is applied, it should be applied to all cost components.
Side constraints should not be used.	ActewAGL Retail, p. 3.	The Commission considers that side constraints seek to minimise changes for any one particular customer segment in a given year. These may therefore be used, if the jurisdiction (or regulators) considers these are appropriate.
Support a length of determination of three years.	Momentum, p. 2.	Agreed. See section 8.3 for further discussion.

Issue raised	Stakeholder	AEMC response
When a price determination is longer than one year, annual reviews of certain cost components should be included.	AGL, p. 6.	Agreed. See section 8.3 for further discussion.
A two year price determination is appropriate.	ActewAGL Retail, p. 7.	The Commission considers that a three year price determination is appropriate. See section 8.3 for further discussion.
Period for setting a price determination should not exceed 12 months, allowing for annual reviews and limiting the need for re-openers.	Alinta Energy, p. 6.	See section 8.3 for further discussion.
There should be transparent triggers for re-opening a price path.	Momentum, p. 3; Simply Energy, p. 2.	Agreed. See section 8.3.3 for further discussion.
Network costs, wholesale energy costs and weighted average cost of capital parameters should be reviewed and updated annually.	EnergyAustralia, p. 25.	The Commission considers that annual reviews should be undertaken for those components that are subject to irregular and significant change. See section 8.3.3 for further discussion.
Changes in law, movement in price of any of the environmental components, or changes in network tariffs, should allow a retail determination to be re-opened.	Momentum, p. 3.	Changes in network costs should be listed as a defined cost pass through event. Other events should be considered on a case by case basis, but with categories defined prior to the regulatory period. See section 8.3.3 for further discussion.
There should be full pass-through of costs that are beyond a retailer's control.	ActewAGL Retail, p. 6; EnergyAustralia, p. 26.	Agreed. See section 8.3.3 for further discussion.
Disagree that a list of pass through events reduces the incentives on retailers to manage or mitigate the risks associated with the occurrence of these events.	EnergyAustralia, p. 26.	The Commission considers that a list of pass through events reduces the incentive on retailers to manage or mitigate the risks associated with the occurrence of these events. However, the Commission notes that a defined list of events may limit the flexibility that regulators and retailers have in assessing and responding to unforeseen events.

Issue raised	Stakeholder	AEMC response
A materiality clause for cost pass throughs is not necessary, when the price can only be made from the start of the next pricing year.	EnergyAustralia, p. 26.	The Commission considers that a materiality clause should be included. See section 8.3.3 for further discussion.

Abbreviations

ACT	Australian Capital Territory
AEMA	Australian Energy Market Agreement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CAPM	Capital asset pricing model
CARC	customer acquisition and retention costs
COAG	Council of Australian Governments
CPI	Consumer Price Index
ERAA	Energy Retailers Association of Australia
ESCOSA	Essential Services Commission of South Australia
ICRC	Independent Competition and Regulatory Commission
IPART	Independent Pricing and Regulatory Tribunal
LGC	Large-scale Generation Certificate
LRET	large scale renewable energy target
LRMC	long run marginal cost
MWh	megawatt hour
NECF	National Energy Customer Framework
NEL	National Electricity Law
NEM	National Electricity Market
NER	National Electricity Rules
NERR	National Energy Retail Rules
NSW	New South Wales

OTC	Over the Counter
OTTER	Office of Tasmanian Regulator
PWC	Power and Water Corporation
QCA	Queensland Competition Authority
RET	Renewable Energy Target
SCER	Standing Council on Energy and Resources
SRES	Small Scale Renewable Energy Scheme
STC	Small-Scale Technology Certificates
WAPC	weighted average price cap