Response to the draft report of the ICRC on regulatory incentive mechanisms

31 August 2005

Submission to the review of the Independent Competition and Regulatory Commission of the possible net benefits of introducing either an efficiency carryover mechanism or service incentive scheme or both to apply to regulated utility services in the ACT
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Our position

ACTEW and ActewAGL are concerned that the Commission’s draft decision rejects an immediate implementation of an efficiency carryover mechanism in the ACT. As stated in our initial submission to the current review, efficiency carryover mechanisms are integral to a complete regulatory framework. For this reason, they have become an accepted and mandatory part of incentive regulation in Australia and overseas.

The Commission’s draft report implicitly advocates the continuation of a system lacking the constant incentive structure to facilitate additional efficiency gains beyond those required by the regulator-determined price path. Under the present arrangements, the cost-savings of additional efficiencies implemented near the end of the regulatory period are almost immediately returned to consumers. This results in a perverse incentive to postpone potential savings until the next regulatory period. It is contrary to the situation in competitive markets where innovation and cost effective services are fostered by the incentive to continually seek lower costs while maintaining service levels.

The draft report points to an unfavourable balance of benefits of an efficiency carryover mechanism against its costs. ACTEW and ActewAGL firmly believe that the Commission has overstated the necessary complexity of an efficiency carryover mechanism. Furthermore, it has understated the potential benefits by mistakenly limiting the types of incentives that could be encouraged to a narrow definition and failing to account for benefits that would arise from the regulator’s greater confidence in revealed costs without the need for intrusiveness.

Despite any assurances by the Commission that it can overcome the shortcomings of the current system by, for example, seeking a detailed understanding of cost structures and providing ad hoc recognition of cost saving initiatives, these cannot be relied on over the longer term, as they only serve to sustain regulatory risk which is not compensated elsewhere in the price direction.

Required regulatory principles

ACTEW and ActewAGL submit the following principles as the fundamental elements to guide development of an effective regulatory framework for its utility services: An effective regulatory framework would:

- Provide a certain and predictable mechanism for recognising and rewarding unanticipated efficiency gains;
- Provide assurance that the mechanism will be applied transparently at regulatory reset;
- Result in an equitable sharing of unanticipated efficiency gains between the businesses and utility consumers;
- Ensure full recognition of past achievement of unanticipated efficiency gains when setting future revenue requirements;
• Apply estimates of efficient costs that account for the lumpy or cyclical nature of costs, ageing of assets, changes to business scope and changes to exogenous factors;

• Recognise there is greater risk to the community in the medium term from a stifling of investment by way of under-funding;

• Provide the business with no less than the revenue required to efficiently operate the business (including capital costs) in any given year;

• Reduce regulatory risk where it is feasible to do so;

• Provide neutrality between capital and operating solutions;

• Provide neutrality between all possible timings for unanticipated efficiency gains;

• Add little or no extra administrative burden;

• Ensure a minimum of regulatory intrusiveness.

Revised efficiency carryover mechanism

In order to develop a suitable mechanism, we propose that the following elements comprise an initial mechanism with scope for further development as required. We have taken account of the arguments in the Commission’s draft decision and propose a rolling efficiency carryover mechanism, similar to that applied by the ESC and ESCOSA, with the following initial characteristics, in order to reflect the principles outlined above:

• the mechanism would be applied to both capital and operating expenditure;

• efficiency gains in operating expenditure would be calculated using an incremental approach against the benchmark operating expenditure;

• efficiency gains in capital expenditure would be calculated against the benchmark capital expenditure in each year, regardless of the previous year’s capital expenditure level;

• the length of the carryover period would initially be equal to that of a regulatory period (usually five years, which would result in a utility-consumer sharing ratio of 30:70);

• the mechanism would be symmetrical, with any negative carryover amount eligible to be offset against gains made in the following regulatory period, but only if the Commission saw fit at the time of the relevant price review;

• final year operating expenditure would be assumed to be equal to expenditure in the previous year adjusted for growth in forecast expenditure between the two years OR final year incremental efficiency gain in operating expenditure assumed to be zero;

• final year capital expenditure would be assumed to be equal to benchmark capital expenditure for that year;

• retrospective adjustments would be made only for material increases in costs resulting from events included in pre-determined pass-through provisions and possibly also for differences in forecast and outturn customer numbers using pre-determined ‘per customer’ costs.
1. Introduction

This submission has been prepared in response to the draft report\(^1\) of the review being conducted by the Independent Competition and Regulatory Commission (ICRC or the Commission) into incentive mechanisms applying to regulation in the ACT. The views presented in the submission are jointly those of:

- The ActewAGL Distribution partnership (ActewAGL) in respect of its electricity and gas distribution networks in the ACT; and
- ACTEW Corporation Limited (ACTEW) in respect of its ACT water and wastewater services, managed and operated under contract by ActewAGL.

The current submission develops ACTEW's and ActewAGL's initial submission of May 2005\(^2\) which responded to the Commission's discussion paper on this topic.\(^3\)

The Commission’s draft decision

The incentive mechanisms specifically under consideration by the Commission are

- a form of efficiency carryover mechanism (ECM); and
- the extension of service quality incentives (SQIs).

On the latter, ACTEW and ActewAGL welcome the Commission's draft finding that additional incentives for service quality are not required at present. This finding is consistent with the observation of our initial submission that current service levels meet or exceed the specified standards and that no case has been mounted for the existing incentives to be changed. It is also true that additional SQI mechanisms would be costly to establish and maintain, especially given the relatively small scale of utility service operations in the ACT.

However, in relation to efficiency carryover mechanisms, ACTEW and ActewAGL believe that, contrary to the Commission's conclusion, it is possible to develop and introduce a mechanism that meets the test of net benefit to the ACT community. Our assessment of this varies from the Commission’s in several important respects, which are discussed in section 3 of this submission.

Efficiency carryover mechanisms are already quite widely used in Australian and international regulatory approaches, and despite occasional adjustments to improve their incentive characteristics, they are integral to the workings of incentive based CPI+/-X regulation.\(^4\) They provide benefits in allowing utilities and customers to benefit from increased efficiencies over and above those foreseen in the regulatory decision, while increasing regulators’ confidence in

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\(^1\) ICRC 2005B  
\(^2\) ACTEW and ActewAGL 2005  
\(^3\) ICRC 2005A  
\(^4\) This was noted by Bill Emery, OFWAT in a speech on 26 August 2004 (see slide 37 of http://www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/AttachmentsByTitle/be_260804_eng.pdf/$FILE/be_260804_eng.pdf)
the utilities’ true costs of operation. There are likely to be only minimal costs of additional complexity or intrusiveness which will be clearly offset by the benefits.

ACTEW and ActewAGL maintain that the lack of an efficiency carryover mechanism means there is a serious gap in the working of the regulatory regime in the ACT. As such, ACTEW and ActewAGL have developed a proposal that attempts to fill this gap whilst acknowledging the Commission’s views and reservations on the components of such a scheme as set down in the draft report. Details of this proposal are included in the following section of this submission.
2. ACTEW’s and ActewAGL’s revised proposal

ACTEW and ActewAGL continue to advocate a rolling efficiency carryover mechanism as a necessary addition to the regulatory regime in the ACT. This was laid out in our first submission on this matter in May 2005. As a result of the Commission’s draft, we have acknowledged the Commission’s views and sought to revise a number of aspects specifically to address the Commission’s concerns regarding the complexity and required level of obtrusiveness associated with an efficiency carryover mechanism.

The following sections detail elements of this proposal.

2.1 Sharing ratio

The Commission was critical of our submission’s proposal for a 50:50 sharing ratio of efficiency gains between the utility and customers, implying that the submission had selectively quoted Victoria’s former Office of the Regulator-General (ORG) in order to gain support for acceptance of a higher sharing ratio.\(^5\) The Commission pointed out that the ORG went on to conclude that a 30:70 utility to customer sharing ratio for efficiency gains was correct.

This conclusion was never at issue. However, derivation of the optimal sharing ratio to drive efficiency gains rests on assumptions about how a utility might behave in response to an incentive offered, subject to maximising the potential benefit to consumers. The ORG’s conjecture is that the relationship might exhibit the property of diminishing marginal returns, that is, as efficiencies become progressively more difficult and costly to identify and reap, the utility will become equally less inclined to respond to any given incentive. The ORG only assumes that this behaviour might reflect reality on the basis that diminishing returns are characteristic of patterns observed in other economic phenomena.

If the ORG’s assumption is true, the optimal sharing ratio could at best be said to lie between 0 and 50 per cent to the utility. Alone, this part of the analysis cannot lead us any closer to the correct ratio, that is, the correct number might be 30 per cent: it might even be 49 per cent. If the ORG is wrong about this aspect of utility behaviour, the actual ratio could be 50 or 60 or even 80 per cent.

To arrive at its preferred 30:70 sharing ratio, the ORG combined its diminishing returns assumption with the observation that an efficiency carryover mechanism is simpler to administer where gains or losses are not required to be carried over beyond the end of the next regulatory period. Given that the five-year period has been adopted in recent years as the norm in Australia, the sharing ratio which emerges from calculating the net present value of carrying efficiency gains for five years is 30:70. Our initial claim for a 50:50 share of gains is based on the equally supportable assumption of a constant, rather than diminishing incentive for efficiency, which would be achieved from carrying over benefits for 10 years.

\(^5\) ICRC 2005B, pp 9-10
ACTEW and ActewAGL can accept that in the interests of increased transparency and simplicity the Commission might prefer not to commit itself or its successors beyond a currently standard five-year regulatory period.

There are also benefits associated with setting the length of the carryover period equal to that of a regulatory period. For instance, this enables a simple approach to dealing with the fact that information regarding final year efficiencies is not available at the time of a price review (the ‘final year’ issue), as discussed in section 2.4 below.

Therefore, ACTEW and ActewAGL propose that, in its initial form, the length of the carryover period be equal to the length of the regulatory period and accept the associated implication of a 30:70 sharing ratio.

2.2 Treatment of negative carryovers

In our response to the discussion paper, ACTEW and ActewAGL stated that it would be inappropriate to subtract negative carryover amounts from the revenue requirement for the next regulatory period, as this would reduce revenue to below the level determined by the cost building block approach to represent the efficient cost of running the business. We proposed that any net negative carryover amount be set to zero.

In its draft decision, the Commission argued that this approach was contrary to its desired characteristic of symmetry.

We believe, however, that the Commission needs to take account of the ‘loss function’ (total social cost as a function of mechanism error) associated with the scheme. This would be asymmetric in the sense that the outcome of under-investment in infrastructure due to over-penalising the utility would be more costly than the outcome of over-rewarding the utility.

This view was put to the Productivity Commission in response to its Review of National Access Regime Position Paper. The Productivity Commission largely agreed with this view, saying:

In the Commission’s view, the latter [over-penalising] is likely to be a worse outcome [than over-rewarding]. Accordingly, it concurs with the argument that access regulators should be circumspect in their attempts to remove monopoly rents perceived to attach to successful infrastructure projects. 6

Considering this, in conjunction with the Commission’s desire for a symmetric scheme, we propose that any negative carryover amount could be offset against gains made in the following regulatory period, but only if the Commission saw fit to do so at the time of the relevant price review.

We note that to avoid distorting the incentive it would be necessary to leave the decision regarding the offset of negative carryovers to the discretion of the Commission at the time of price reviews. Otherwise, if the Commission committed (at the beginning of a regulatory

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6 Productivity Commission 2002, p83
period) to resetting any negative carryovers to zero at the time of the following price review, there would be a perverse incentive for a utility, if it had accrued significant efficiency losses, to delay achievable efficiencies to the end of a period. The alternative of carrying over significant efficiency losses (to be offset against any gains made in that period) may reduce incentives to achieve efficiency gains in that period.

2.3 Future estimates of efficient costs

In the Commission’s discussion paper, and in our response, it was noted that the use of actual costs in setting future cost benchmarks could weaken the incentives provided by an ECM. However, in its draft decision, the Commission stated that, in the absence of a viable alternative, there is a need to consider the trends in actual costs when forecasting future costs.

We accept that recent actual costs are a valuable part of the information set used to estimate the efficient cost of running the business in the future. However, in the presence of an ECM, reliance on actual costs needs to be minimised. To the greatest extent possible, the regulator must consider factors such as those outlined in our response to the discussion paper, that is:

- the lumpy or cyclical nature of costs;
- ageing of assets;
- changes to business scope; and
- changes to exogenous factors.

We also note the Commission’s comments regarding the treatment of efficiencies that are characterised by investments with a long payback period:

To provide appropriate incentives for the business to seek those efficiencies, there is a need to allow the business to retain an appropriate amount of the efficiency savings. If the regulator were to immediately return these efficiencies to consumers, the business would have no incentive to seek the efficiencies. Therefore, there is a need for the regulator to consider investment in future efficiencies when setting cost forecasts in future regulatory periods.

So as to have the properties of an incentive mechanism, it would be essential for the Commission to set out its intended approach in a manner that is certain and transparent.

2.4 Final year efficiencies

ACTEW and ActewAGL propose that expenditure for the final year (year T) of the regulatory period be assumed to be:

\[
\text{Assumed opex}_T = \text{actual opex}_{T-1} \times \text{real forecast opex}_T / \text{real forecast opex}_{T-1}
\]
This is in line with ESCOSA’s approach and would result in an assumed final year incremental efficiency gain close to zero.

Alternatively, if the Commission considers this approach too complex, the final year incremental efficiency gain could be set to zero.

As discussed below, any permanent efficiency gain made in the final year of the regulatory period will be retained for the length of the following regulatory period because it would not be taken into account when setting cost benchmarks for that period. If, as ACTEW and ActewAGL have proposed, the length of the carryover period is set equal to the length of the regulatory period, the incentive to achieve efficiencies in the final year will be equal to that of the other years in the regulatory period, which is in accord with the proposed incentive principle.

2.5 Retrospective adjustments

ACTEW and ActewAGL propose that at the time of each price review, the Commission identify an operating and capital cost per customer, together with the forecast number of customers for each year of the regulatory period. This pre-established cost per customer would be used to adjust expenditure forecasts, for the purpose of calculating the efficiency carryover amount at the time of the next review. We also propose that retrospective adjustments be made to cost benchmarks where costs are materially affected by any pre-determined pass-through event.

This adjustment is simple and transparent, and would not require information additional to that normally provided during price reviews. However, we agree that making retrospective adjustments for differences between forecast and outturn customer numbers improves accuracy at the expense of simplicity. If the Commission’s maintains its view that the increase in accuracy does not justify the reduction in simplicity, ACTEW and ActewAGL would be willing to accept a mechanism such as that recently determined by ESCOSA in which retrospective adjustments are made only for material cost increases (or decreases) resulting from pre-determined pass-through events.

2.6 Application to both opex and capex

ACTEW and ActewAGL have varied our original proposal and now propose that the efficiency carryover mechanism apply to both opex and capex. This aligns with and has been done to acknowledge the Commission’s view that “if an efficiency carryover mechanism is to be introduced it should apply to both operating and capital expenditure.”

We note that it would be necessary for the Commission to obtain detailed forecast and actual capex as part of price reviews to ensure that the cost of deferred projects are not included in cost benchmarks for a second regulatory period (in addition to the carryover for the

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8 ESCOSA 2005, p.70
9 ICRC 2005B, p16
underspend resulting from the deferral). We also note that the Commission is already provided with this sort of information as part of its current capex monitoring processes.

We address the Commission’s concerns regarding the complexity introduced by applying the mechanism to capex in section 3.1 below.
3. The Commission’s draft report

The draft decision’s rejection of an efficiency carryover mechanism relies upon three key arguments, which we will address in the remainder of this submission. These are the Commission’s assessments that:

- such a mechanism would be likely to impose costs (resulting from complexity, obtrusiveness and any distortions it caused) greater than the benefits gained (in terms of lower prices for utility services in the future);
- unless potential efficiencies result from opportunities for costless elimination of waste from the production process, the issue of non-uniform incentives becomes ‘less crucial’ or ‘irrelevant’; and
- the possibility of a national regulator adjusting any mechanism adopted creates a high level of uncertainty for regulated businesses and jurisdictional regulators.\(^{10}\)

The draft decision also evaluates ACTEW’s and ActewAGL’s proposals from our initial submission against a set of attributes that the Commission considers should characterise an efficiency carryover mechanism.

3.1 Complexity of a rolling efficiency carryover mechanism

ACTEW and ActewAGL believe that the Commission has overstated the complexity and obtrusiveness associated with an efficiency carryover mechanism. In particular:

- the ‘final year issue’ can be easily overcome where the lengths of the carryover period and the regulatory period are equal;
- retrospective adjustments for demand or customer growth need not be complex. The approach taken by the ESC for gas distribution businesses is a good example of a simple, transparent and certain approach; and
- the introduction of a mechanism applying to both opex and capex would not require any complex ‘balancing’.

In its draft decision, the Commission did not canvass the benefits of a carryover mechanism in enabling the regulator to place greater reliance on reported costs as being a truer measure of efficient costs. Other regulators have highlighted this as an important benefit of the efficiency carryover mechanism, particularly in relation to opex, enabling regulation to be less intrusive and reducing the regulatory burden on both the regulator and the regulated business. For example, the ESC has said:

\(^{10}\) ICRC 2005B, p19
By increasing the rewards for efficiency gains over and above those normally applying under a fixed term price cap, the efficiency carryover mechanism also assists with reducing the information asymmetry problem.\(^\text{11}\)

and:

The central proposition of the [incentive] framework was that under-spending against the expenditure benchmarks established at the last review would be rewarded equally irrespective of the year in which the under-spending occurred. By deriving an efficiency carryover in this way, the incentive to defer efficiency improvements or allow expenditure to increase towards the end of one regulatory period, and so obtain more generous expenditure forecasts in the following regulatory period, would be reduced. Based on this assumption, revealed costs from one period could be given greater weight in establishing efficient expenditure forecasts for the next regulatory period.\(^\text{12}\)

The degree of complexity introduced by a rolling ECM is discussed in further detail in section 3.1.

### 3.2 Efficiencies as investment decisions

In finding a net cost to the community from introducing an ECM the Commission relies on its own specific understanding of the nature of efficiency gains and the ability of an ECM to efficiently encourage them. The Commission was of the view that “costless, one-off instantaneous reductions in expenditure” were the main target of an ECM. However, ACTEW and ActewAGL consider that the five-year rolling efficiency carryover mechanism is equally applicable where efficiencies are realised a number of years after an upfront cost. We have found support for the effectiveness of an ECM under the Commission’s so-called *investment decisions* model of efficiencies from the South Australian regulator ESCOSA.

Extending the applicability of ECMs to investment decisions implicitly improves the net benefit to be had from ECMs, and also removes the assumption of a wasteful utility as a precursor to introducing an ECM.

The inclusion of the results of *investment decisions* in the types of efficiencies able to be encouraged by an ECM is also at odds with the view that constant incentives for efficiency are unnecessary. ACTEW and ActewAGL would therefore urge the Commission to include *continuous and consistent incentives* as one of the criteria by which it assesses potential mechanisms. We reiterate the point in our initial submission that the creation of non-distorting incentives is exactly the issue that an ECM aims to address.

We note that some (but certainly not all) investments in efficiency can have a long-term payback period. In such cases, we agree with the Commission’s view that “there is a need for the regulator to consider investment in future efficiencies when setting cost forecasts in future regulatory periods.” To have the maximum impact on incentives, the Commission needs to set out its intended approach transparently and with sufficient certainty.

\(^{11}\) ESC 2005A, p9

\(^{12}\) ESC 2005B, p9
3.3 Introduction of national regulator

In its draft report, the Commission put the view that, given the proximity of the proposed transfer of responsibility for regulation of energy distribution pricing to a national regulator, introduction of an efficiency carryover mechanism in the ACT would promote undesirable uncertainty of future regulatory arrangements.\(^\text{13}\)

ACTEW and ActewAGL disagree with this proposition on several counts.

Firstly, the Commission’s review includes determining whether incentive mechanisms are applicable to ACT water and wastewater services as well as gas and electricity distribution. There is no proposal to change the regulatory requirements for water and wastewater.

Second, deferral of a decision on such an important issue would suggest that the Commission is taking on a caretaker role, rather than continuing to develop and advocate an efficient and workable regulatory regime in the ACT. The lack of an efficiency carryover mechanism does not reduce uncertainty for the business: it raises it.

Thirdly, a number of variants of efficiency carryover mechanisms are already in operation throughout Australia in the other jurisdictions. Whenever the national regulator assumes responsibility for energy regulation, it will deal with these individual mechanisms, unless or until there is clear merit in moving away from them. An ECM in the ACT with broadly similar characteristics to those in other jurisdictions is unlikely to pose a significant problem.

Fourthly, ACTEW and ActewAGL would prefer that an ECM be introduced that takes advantage of the valuable experience and specific knowledge of the Commission acquired over 10 years regulating businesses in the ACT.

3.4 Discussion of criteria

The Commission proposes a list of attributes\(^\text{14}\) against which a proposed efficiency carryover mechanism is to be assessed. These are that any efficiency carryover mechanism implemented should be:

- Transparent;
- Simple and unobtrusive;
- Repeatable;
- Symmetrical;
- Accurate;
- Non-distortionary;
- Equitable; and

\(^\text{13}\) ICRC 2005B, p19
\(^\text{14}\) ICRC 2005B, p3
Economically efficient.

We have three concerns with the list of attributes.

Firstly, they do not provide any guide to the development of an incentive mechanism. We have attempted to redress this by developing a set of workable principles set out in the first part of our submission.

Secondly, ACTEW and ActewAGL note that the Commission has not included in these criteria the fundamental objective of an efficiency carryover mechanism. That is, that any efficiency carryover mechanism should provide uniform and continuous incentives to achieve efficiencies.

The Commission stated that this issue is ‘less crucial’ or ‘irrelevant’ if efficiencies are thought of as investment decisions. As discussed in detail in section 3.2, this assertion relies on an inaccurate assumption that all such investments have a very long payback period.

We believe that the issue of uniform incentives is a crucial one, and should be included in the criteria for assessing any proposed mechanism. A rolling efficiency carryover mechanism performs well against this criterion, while the current regime does not.

The Commission argued that under the current regime the incentive to achieve efficiencies does not diminish to zero by the end of the regulatory period. We concur that the utility retains the benefits of an efficiency gain achieved in the penultimate year of a regulatory period for a short time. However, we would argue that there is no incentive to achieve a gain in that year given that the utility would always choose to delay the efficiency gain until the following year (the final year of the regulatory period) in order to retain the gain for a much longer period (until the end of the following regulatory period).

This aside, it seems the Commission agrees that incentives to achieve efficiencies under the current regime are not uniform throughout a regulatory period. The draft decision states:

Under the current methodology adopted in the ACT, the regulated business may have a greater incentive to achieve efficiency gains in earlier rather than later years of the regulatory period, because the regulated business can maintain these gains for the remaining length of the period.

We strongly advocate that a rolling efficiency carryover mechanism should be introduced to address this issue.

Thirdly, there is no guidance on the weighting of any of these attributes. We note that when designing a mechanism, there are clear trade-offs between them. For instance, accuracy is often achieved at the expense of simplicity. In such cases, it is a matter of subjective judgement. The Commission’s draft decision seems to suggest that the reductions in simplicity associated with ACTEW’s and ActewAGL’s proposals outweigh the improvements in

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15 ICRC 2005B, p13
16 ICRC 2005B, p1
accuracy. Having now had the benefit of the Commission’s views on the appropriate trade-off, we address this concern in the following section.
4. The potential complexity of an ECM

The Commission’s key objection to the introduction of an efficiency carryover mechanism appears to be its complexity. The Commission concluded that it:

… believes that the additional complexity and required level of obtrusiveness would mitigate the possible benefits\textsuperscript{17}

We firmly believe that the Commission has overstated the complexity of an efficiency carryover mechanism. In the remainder of this section, we address the Commission’s concerns with regard to final year efficiencies, retrospective adjustments and the application of a mechanism to capital expenditure.

Final year issue

In our submission we pointed out that information on the final year of a regulatory period is not available at the time of price reviews. We noted that it would therefore be necessary for the Commission either to make an assumption about final year efficiencies or to delay the carryover of any final year efficiency.

The Commission stated that the latter option would substantially increase the complexity of the scheme.

Regarding the former option, the Commission argued that an approach such as ESCOSA’s would result in the utility retaining any final year efficiency in perpetuity. In fact, any final year efficiency would be incorporated in cost benchmarks after five years (in the case of a 5-year regulatory period) at the following price review. Thus, the utility retains the efficiency gain for the five years following the year in which the efficiency was made. This is consistent with the 5-year rolling efficiency carryover mechanism.

The example given by the Commission is where operating expenditure in the final year had been forecast as $100 and is actually $90. The Commission states that the business will retain the $10 difference in perpetuity since the amount is not taken into account when setting forecasts in the following regulatory period.

Under the approach taken by ESCOSA (and the ESC), actual observed operating expenditure is used as the basis for determining future operating expenditure benchmarks. If the business makes an efficiency saving of $10 in year 5 of the first regulatory period, the Commission is correct in saying that the operating expenditure forecasts for the second regulatory period would not take this cost reduction into account—that is, the operating cost forecast for the next regulatory period would remain at $100 per year. However, at the end of the second regulatory period, actual expenditure at that time will be used as the basis for determining the operating cost benchmark for the third regulatory period.

\textsuperscript{17} ICRC 2005B, p19
If the business achieved a permanent operating cost reduction of $10, so that annual operating cost in each year is now $90, the cost forecast for the third regulatory period will therefore be set at $90 a year (and not $100). In this way, the business receives the benefit of its $10 efficiency reduction for five years after the year in which the efficiency saving was made (ie, in years 1 to 5 of the second regulatory period) – in just the same way as it would have done if the efficiency saving had been made in, for example, the fourth year of the first regulatory period and explicitly included in the efficiency carryover mechanism. The business does not retain the $10 efficiency saving in perpetuity.

We believe that the Commission has over-estimated the complexity of this issue. An approach such as ESCOSA’s would not increase the complexity or obtrusiveness of the regulatory regime. It simply involves multiplying the actual expenditure in year 4 by the growth in the original cost forecasts between years 4 and 5.

As long as the lengths of the carryover period and the regulatory period are equal, continuous incentives would be maintained due to the fact that any final year efficiencies would not be taken into account in setting cost benchmarks for the following regulatory period. As a result, final year gains would be kept for the whole of the following regulatory period, which is the same retention period as for gains achieved in other years. This is demonstrated in Table 1 below.

This example demonstrates that, under such an approach, a permanent reduction in opex of $5 pa will be retained by the utility for 5 years after the year in which the efficiency is achieved, regardless of whether the efficiency is achieved in year 4 or year 5 (the final year).  

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18 Note that the calculation for incremental efficiency gain in the first year of a regulatory period proposed by ACTEW and ActewAGL in its response to the discussion paper was incorrectly stated. The correct formula, which has been used in this example, is (for year 6 in scenario 1) equal to (6c-5c)-(6a-5a)
Retrospective adjustments

In our response to the Commission’s discussion paper, ACTEW and ActewAGL argued for retrospective adjustments for pass-through events with a material impact on costs and for unanticipated demand or customer growth.

In its draft decision, the Commission stated that retrospective adjustments for demand or customer growth would unnecessarily and substantially increase the complexity and obtrusiveness of the regulatory process.
Adjustments for differences in forecast and outturn growth need not be complex and intrusive. In the case of the gas distribution businesses in Victoria, the ESC in its Final Decision on the Access Arrangements identified an operating and capital cost per connection, together with the forecast number of connections for the next regulatory period. This pre-established cost per connection will be used to adjust the expenditure forecasts to reflect any difference between forecast and outturn number of connections, for the purpose of calculating the efficiency carryover amount at the time of the next review. The adjustment that will be made to account for the difference between forecast and outturn growth is therefore highly transparent, is known in advance and relies only on differences between actual and forecast customer numbers, both of which would be routinely provided as part of the regulatory review process. This approach is therefore not intrusive, and does not require any additional ‘auditing’ of the actual outturn.

The Commission comments in its Draft Decision that it believes that there may be a degree to which any additional costs incurred because of unforeseen growth may be offset via additional revenue. We note that the Office of the Regulator-General in Victoria (now the ESC) also took this approach in its review of electricity distribution prices for 2001-2005. However, in the appeal against the ORG’s decision brought by the distributors, the Appeal Panel found that:

- “In the Panel’s view, [not adjusting for differences between forecast and outturn demand] results in a measure which does not reflect efficiency as normally understood, and which creates incentives for the distribution business to perform inefficiently”
- “…a cost increase necessitated by an increase in output is treated as a reduction in efficiency.”
- “The Panel noted the Office’s argument that the business will gain from additional profits as a result of greater sales, and that this should be sufficient reward. However this argument is not relevant given the objective is to obtain an efficiency measure. The rule of thumb used will credit the business with efficiency reductions, and this will reduce the benefit of any efficiency carryover. If efficiency remains unaltered or even increases the business will be penalised because of greater output and costs.”

Following the Appeal Panel’s finding, the Office’s Re-Determination made an adjustment for growth in calculating the efficiency carryover amounts for the Victorian electricity distributors’ mechanism applying to both opex and capex.

**Application of an ECM to capital expenditure**

Our earlier submission sought to provide the Commission with discretion over whether an efficiency carryover mechanism should encompass both opex and capex or opex alone. In taking this position, we were mindful of the issues arising with respect to the capex-inclusive mechanism operating in the ESC’s review of the electricity distribution pricing. Equally though, we were aware of views on the potential to favour capital spending over operating and maintenance based solutions under an opex only mechanism.

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19 ESC 2002, pp168-170
20 ORG 2000, pp94-96
21 As reported in: ORG 2001, pp4-5
The Commission came to the view in the draft decision that a mechanism applying to both opex and capex would introduce additional complexity and obtrusiveness, and an opex only mechanism might prove too distortionary on expenditure decisions.

We note that the Commission concluded that “if an efficiency carryover mechanism is to be introduced it should apply to both operating and capital expenditure.”

The Commission then goes on to state that:

If both mechanisms are introduced, there is a need to structure the two to create the incentive to achieve the efficient input mix. This would require the regulator to obtain a substantial amount of information on the operations of the regulated business, which would increase the regulatory burden on the business and the regulator.

It is unclear what the Commission means by needing to ‘structure’ the efficiency carryover mechanism to achieve an efficient input mix. As the example in Table 3 below shows, there is automatically an incentive under the carryover to substitute capital for operating expenditure (or vice versa), where this results in a lower cost overall. Both ESCOSA and the ESC have applied mechanisms that apply to both capital and operating expenditure, and this has not entailed any need to ‘structure’ the mechanism.

We note that the ESC’s decision not to apply a carryover for capex in the next regulatory period relates to its concern that the carryover may be overcompensating businesses for deferral of expenditure from one regulatory period to the next. This is different to the general concern regarding complexity that the Commission raises (and which is overstated). We agree that in order to apply a mechanism to capex, the Commission may require relatively detailed capex forecasts from the utility in order to ensure that deferred projects are not included in cost benchmarks for a second regulatory period (in addition to an efficiency carryover for underspending in the original period).

Given that this capex information is routinely provided as part of price reviews, the additional complexity and obtrusiveness introduced by a mechanism applying to capex would be minimal.

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22 ICRC 2005B, p15
23 ICRC 2005B, p16
24 The ESC’s mechanism for the electricity distributors for 2000-2005 and for the gas distributors for 2003-2008 covers both operating and capital expenditure; for the 2006-2010 period the ESC has proposed to only apply the mechanism to operating expenditure.
25 ESC 2005B pp349-351
5. The nature of efficiency gains

The Commission concluded in its draft decision that non-uniform incentives are ‘less crucial’ or ‘irrelevant’ if efficiency gains are considered as investment decisions, which have initial costs followed by benefits over the longer term (rather than the simple removal of waste from the production process).

The Commission stated that conceptualising efficiency gains as costless, one-off, instantaneous reductions in expenditure is “consistent with the treatment of efficiency incentives under most mechanisms in Australia, including those operated or contemplated by the ACCC, the ESC and ESCOSA.”

We do not agree that the operation of the efficiency carryover mechanisms introduced by the ESC and ESCOSA are applicable only or primarily to ‘costless, one-off instantaneous reductions in expenditure.’ The discussion paper released by ESCOSA in relation to its efficiency carryover mechanism clearly considered alternative types of efficiency gain, not limited to one-off improvements in efficiency, namely (i) a permanent reduction in opex; (ii) a one-off reduction in capex; and (iii) a permanent reduction in capex.26

More fundamentally, the efficiency carryover mechanisms are equally applicable where the efficiency gain is achieved as the result of upfront expenditure by the business. Where a regulated business incurs upfront expenditure in order to achieve subsequent efficiencies, this upfront expenditure would be treated as an ‘inefficiency’ under the rolling carryover mechanism, with an associated penalty. However, the subsequent improvements in efficiency would result in a reward under the efficiency carryover mechanism. In calculating the total efficiency carryover amount for the regulatory period, the rewards and penalties would both be taken into account. The business would have an increased incentive to undertake the investment in the efficiency measure where the overall net efficiency carryover amount is positive (compared to a situation where there is no efficiency carryover mechanism).

This is illustrated in Table 2 below. Using one of the Commission’s examples, suppose that the business invests in a program, which increases its operating costs in year 2 by $20 to $100. There would be a penalty under the efficiency carryover mechanism of $20, associated with the overspend.27 However, this penalty would be offset by the subsequent improvement in employee efficiency. In the example it is assumed that increased employee efficiency reduces operating costs from year 4 onwards by $5 (ie, there is a delay between the initial investment and the time at which efficiencies are realised). There would be a reward under the carryover mechanism associated with this reduction in operating costs. Overall, the net impact of the investment, including the efficiency carryover amount, is positive for the business (NPV of

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26 ESCOSA 2002, p22
27 Note that, since operating cost efficiencies are calculated on an incremental basis under the efficiency carryover mechanism, the total penalty applied for the investment is limited to the $20 overspend. In subsequent years, the $20 penalty associated with the overspend is offset by a $20 ‘reward’ associated with the return of operating costs to their forecast level in the third year
$14.58). The business will therefore have an incentive under the efficiency carryover arrangements to undertake the ‘investment’.

**Table 2 – Investment-type efficiency gain (opex)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Regulatory period 1</th>
<th>Regulatory period 2</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td>6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Forecast expenditure</td>
<td>80 80 80 80 80</td>
<td>75 75 75 75 75</td>
</tr>
<tr>
<td>b</td>
<td>Actual expenditure</td>
<td>80 100 80 75 75</td>
<td>75 75 75 75 75</td>
</tr>
<tr>
<td>c</td>
<td>Underspend/overspend</td>
<td>0 -20 0 5 5</td>
<td>0 0 0 0 0 0</td>
</tr>
<tr>
<td>d</td>
<td>Incremental efficiency gain/(loss)</td>
<td>0 -20 20 5 0</td>
<td>0 0 0 0 0 0</td>
</tr>
<tr>
<td>e</td>
<td>Efficiency carryover from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Year 1</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0 0</td>
</tr>
<tr>
<td>g</td>
<td>Year 2</td>
<td>-20 -20 -20</td>
<td>-20 -20 0 0 0</td>
</tr>
<tr>
<td>h</td>
<td>Year 3</td>
<td>20 20</td>
<td>20 20 20 0 0 0</td>
</tr>
<tr>
<td>i</td>
<td>Year 4</td>
<td>5</td>
<td>5 5 5 5 5</td>
</tr>
<tr>
<td>j</td>
<td>Year 5</td>
<td>0</td>
<td>0 0 0 0 0</td>
</tr>
<tr>
<td>k</td>
<td>Retained efficiencies</td>
<td></td>
<td>5 5 25 5 0</td>
</tr>
<tr>
<td>l</td>
<td>Expenditure used for pricing (j+a)</td>
<td>80 80 80 80 80</td>
<td>80 80 100 80 75</td>
</tr>
<tr>
<td></td>
<td>Difference between (k) and (b)</td>
<td>0 -20 0 5 5</td>
<td>5 5 25 5 0</td>
</tr>
</tbody>
</table>

Table 3 provides a further example, based on a trade-off between increased capital costs leading to a reduction in future operating costs. Using another of the ICRC’s examples, suppose that the business installed additional capital equipment in year 2 of the regulatory period, such that total capital costs in that year were $110, rather than the $100 capex forecast. The overspend of $10 would be treated as an inefficiency under the carryover mechanism, and a penalty would apply for the following five years (using a WACC of 7%, this penalty is -$0.70 a year). However, the additional capital equipment allows labour to be reduced, thereby reducing operating costs. This reduction in labour occurs after the capital investment. Operating costs are reduced from year 4 onwards, to $75 compared with the $80 benchmark. This efficiency improvement results in a reward under the efficiency carryover mechanism of $5.00, which applies for the five years following the year in which the investment was made. The net impact of the investment, including the penalty for capex and the reward for the operating cost reduction under the efficiency carryover, is again positive (NPV of $17.48), resulting in a positive incentive for the regulated business to undertake the investment.
### Table 3 – Investment-type efficiency gain (opex and capex)

<table>
<thead>
<tr>
<th>Operating and Maintenance expenditure</th>
<th>Regulatory period 1</th>
<th>Regulatory period 2</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1 2 3 4 5</td>
<td>6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>a Forecast expenditure</td>
<td>80 80 80 80 80</td>
<td>75 75 75 75 75</td>
<td></td>
</tr>
<tr>
<td>b Actual expenditure</td>
<td>80 80 80 75 75</td>
<td>75 75 75 75 75</td>
<td></td>
</tr>
<tr>
<td>c Underspend/(overspend)</td>
<td>0 0 0 5 5</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>d Incremental efficiency gain/(loss)</td>
<td>0 0 0 5 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>e Efficiency carryover from:</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>f Year 1</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>g Year 2</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>h Year 3</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>i Year 4</td>
<td>5 5 5 5 5</td>
<td>5 5 5 5 5</td>
<td></td>
</tr>
<tr>
<td>j Retained efficiencies</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>k Expenditure used for pricing (j+a)</td>
<td>80 80 80 80 80</td>
<td>80 80 80 80 80</td>
<td>75</td>
</tr>
<tr>
<td>l Difference between (k) and (b)</td>
<td>0 0 0 5 5</td>
<td>5 5 5 5 5</td>
<td>20.82</td>
</tr>
<tr>
<td>WACC (pre-tax real)</td>
<td>7.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capital expenditure (net of customer contributions)</th>
<th>Regulatory period 1</th>
<th>Regulatory period 2</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1 2 3 4 5</td>
<td>6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>m Forecast expenditure</td>
<td>100 100 100 100 100</td>
<td>100 100 100 100 100</td>
<td></td>
</tr>
<tr>
<td>n Actual expenditure</td>
<td>100 110 100 100 100</td>
<td>100 100 100 100 100</td>
<td></td>
</tr>
<tr>
<td>o Underspend/(overspend)</td>
<td>0 -10 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>p Incremental efficiency gain/(loss)</td>
<td>0 -0.7 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>q Efficiency carryover from:</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>r Year 1</td>
<td>-0.7 -0.7 -0.7</td>
<td>-0.7 -0.7 0 0 0</td>
<td></td>
</tr>
<tr>
<td>s Year 3</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>t Year 4</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>u Year 5</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>v Total benefit to utility</td>
<td>0.0 -0.7 -0.7 -0.7 -0.7</td>
<td>-0.7 -0.7 0 0 0</td>
<td>-3.34</td>
</tr>
<tr>
<td>w Total (v+l)</td>
<td>0.0 -0.7 -0.7 4.3 4.3</td>
<td>4.3 4.3 5 5 0</td>
<td>17.48</td>
</tr>
</tbody>
</table>

The examples above clearly show that an efficiency carryover mechanism can be applied to efficiency gains that involve some upfront cost. The fact that efficiencies are unlikely to be costless does not mean that an efficiency carryover mechanism cannot be introduced. The mechanisms implemented by the ESC and ESCOSA are applied to efficiency gains which involve upfront costs in the same way that they would apply to any gains achieved without any upfront costs.
The Commission expresses the view that if efficiency gains are considered as an investment decision, the issue of reduced incentives to achieve gains becomes ‘less crucial’ or even ‘irrelevant’. The examples above illustrate that this is not the case.

The Commission’s argument appears to correspond more with a view that efficiency gains are the result of investment with a long-term payback period, that is, one which is longer than a single regulatory period. Clearly not all ‘investments’ in efficiency improvement will be of such a long-term nature. To consider all efficiency improvements as being characterised by investment with a long-term payback period would be as unrealistic as considering all efficiency improvements as costless, one-off, instantaneous reductions in expenditure.

Whilst it would be unrealistic to characterise all efficiency improvements as investments with long payback periods, we agree that there will be some efficiency improvements that do meet this definition. In this regard, we note the Commission’s comment that:

To provide appropriate incentives for the business to seek those efficiencies, there is a need to allow the business to retain an appropriate amount of the efficiency savings. If the regulator were to immediately return these efficiencies to consumers, the business would have no incentive to seek the efficiencies. Therefore, there is a need for the regulator to consider investment in future efficiencies when setting cost forecasts in future regulatory periods.

To use the example provided by the Commission, imagine that a utility invests in a program that is expected to provide operating efficiency benefits, but where the payback period for the investment extends over several regulatory periods. If the utility incurs the cost of the program partway through the regulatory period, that would represent a cost that is not recoverable by the utility. If the Commission were subsequently to set future operating cost benchmarks on the basis of the observed lower operating cost outcomes resulting from the program, the utility may be unable to retain a sufficient amount of the benefits associated with that program to make its initial investment worthwhile.

The Commission recognises this dilemma, and the implications for the regulated business’ incentives. However, beyond the statement above, it has offered no concrete proposals for how it intends to take ‘investment in future efficiencies’ into account when determining cost forecasts for future regulatory periods. Indeed elsewhere in the paper it discusses basing forecasts on actual outcomes.

We are pleased that the Commission has recognised the impact of the regulatory regime on investment in long-term efficiency savings, and in particular the interaction with the setting of future expenditure forecasts. However, in order to have the maximum impact on incentives it

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28 ICRC 2005B, p8
29 ICRC 2005B, p19
30 ICRC 2005B, p14
would be desirable for the Commission to set out its intended approach in a manner that is transparent and has sufficient certainty.
<table>
<thead>
<tr>
<th>Glossary</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCEC</td>
<td>Australian Competition and Consumer Commission</td>
</tr>
<tr>
<td>ACT</td>
<td>Australian Capital Territory</td>
</tr>
<tr>
<td>ACTEW</td>
<td>ACTEW Corporation Limited</td>
</tr>
<tr>
<td>ActewAGL</td>
<td>Unless otherwise specified, refers to the ActewAGL distribution partnership. The distribution partners are ACTEW Distribution Limited and AGL Gas Company (ACT) Limited.</td>
</tr>
<tr>
<td>AEMC</td>
<td>Australian Energy Market Commission</td>
</tr>
<tr>
<td>AER</td>
<td>Australian Energy Regulator</td>
</tr>
<tr>
<td>AGL</td>
<td>Australian Gas Light Company Pty Ltd</td>
</tr>
<tr>
<td>Capex</td>
<td>capital expenditure</td>
</tr>
<tr>
<td>ESC</td>
<td>Essential Services Commission (of Victoria)</td>
</tr>
<tr>
<td>ESCOSA</td>
<td>Essential Services Commission of South Australia</td>
</tr>
<tr>
<td>ICRC</td>
<td>Independent Competition and Regulatory Commission</td>
</tr>
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<td>ICRC Act</td>
<td><em>Independent Competition and Regulatory Commission Act 1997 (ACT)</em></td>
</tr>
<tr>
<td>IPART</td>
<td>Independent Competition and Regulatory Tribunal (of NSW)</td>
</tr>
<tr>
<td>MCE</td>
<td>Ministerial Council on Energy</td>
</tr>
<tr>
<td>NERA</td>
<td>NERA Consulting Pty Ltd</td>
</tr>
<tr>
<td>NSW</td>
<td>New South Wales</td>
</tr>
<tr>
<td>Opex</td>
<td>operating and maintenance expenditure</td>
</tr>
<tr>
<td>UMA</td>
<td>Utilities Management Agreement, the contract between ACTEW and ActewAGL governing the management and operation of water and wastewater services in the ACT</td>
</tr>
<tr>
<td>Utilities Act</td>
<td><em>Utilities Act 2000 (ACT)</em></td>
</tr>
</tbody>
</table>
References

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Essential Services Commission of Victoria (ESC) 2002, Review of Gas Access Arrangements, Final Decision, October

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