



Response to ESCOSA's draft decision: efficiency targets and cost indices

A REPORT PREPARED FOR SA WATER

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Response to ESCOSA's draft decision: efficiency targets and cost indices

Executive summary	iii
Part A: Efficiency targets	1
1 Background	1
2 Catch-up efficiency	4
3 Continuing efficiency	6
3.1 Background	6
3.2 Proposed continuing efficiency target — capex	7
3.3 Proposed continuing efficiency target — opex	8
3.4 Overall continuing efficiency targets	14
Part B: Real input cost escalators	17
4 Introduction	17
5 The use of cost escalators by regulators	18
6 Relationship between input costs and the CPI	21
6.1 Labour costs	22
6.2 Other input costs	23
7 Incentives for cost savings & cost risks	24
8 Double-counting / interactions with efficiency assumptions	24
References	26

Response to ESCOSA's draft decision: efficiency targets and cost indices

Figures

Figure 1: Continuing and catch-up efficiency over time	2
Figure 2: The interaction between opex and capex efficiency savings	14
Figure 3: Wage growth has been greater than CPI to December 2012	23

Tables

Table 1: ESOSCA's draft decision	2
Table 2: Impact of proposed capex efficiency targets	3
Table 3: Impact of proposed opex efficiency targets	3
Table 4: The magnitude and source of ESCOSA's continuing efficiency assumptions	7
Table 5: Cardno's reported opex efficiency targets in other Australian jurisdictions	9
Table 6: Water Corporation (WA) elements of operating expenditure	13
Table 7: CAPEX and OPEX continuing efficiency assumptions	15
Table 8: Forecast of real capex input cost escalation provided by Evans & Peck (annual % expressed in real terms)	17
Table 9: Forecast of real opex input cost escalation provided by Evans & Peck (annual % expressed in real terms)	17
Table 10: AER draft decision, ElectraNet proposed and SA Water proposed labour cost escalators (%)	20
Table 11: ACTEW proposed, Cardno proposed and SA Water proposed labour cost escalators for operating expenditure (%)	20

Executive summary

Frontier has been engaged to assist SA Water in responding to ESCOSA's Draft Determination on efficiency targets and appropriate cost escalators. In our brief review we have identified a number of serious concerns.

Part A considers ESCOSA's draft decision to impose efficiency targets on SA Water, the value of the targets and the way in which they were applied. In reviewing the draft decision, Frontier has undertaken a review of the advice provided to ESCOSA by the expenditure consultants Cardno. We found:

- SA Water has been identified as being efficient relative to its peers. Notwithstanding this, Cardno advised the imposition of a catch-up efficiency target on capital expenditure. No catch-up efficiency target was imposed on operational expenditure.
- Cardno's advised approach imposes significant targets for continuing efficiency in capital and operating expenditure. These efficiency targets are material and will result in a substantial reduction to expenditures, making it vital that they are robust.
- Cardno's advice to ESCOSA regarding efficiency targets is not consistent with its advice to other Australian regulators.
- Accepting Cardno's advised approach would lead to an outcome that is not consistent with the approach adopted by other Australian regulators in terms of the magnitude of efficiency targets and the expenditure base over which efficiency targets are applied.
- In our view, Cardno's advice and ESCOSA's draft decision are not consistent with regulatory decisions which are based on clear evidence and transparent analysis.

Part B considers ESCOSA's draft decision to accept Cardno's advice to disallow SA Water's use of real input cost escalators. We found:

- Cardno advised ESCOSA that doing so would be consistent with regulatory decisions in other jurisdictions. However we identify that cost escalators are often used by regulators, including ESC and AER, and are being considered by ERA.
- Cardno advised ESCOSA that input prices have a long-term trend to follow inflation, however we show labour cost growth has been higher than CPI for the past 15 years. This is important because labour costs comprise 30% of SA Water's operational expenditure.

Overall, we have identified a number of key concerns with Cardno's advice that bring into question the veracity of the advice and require close review and reconsideration before ESCOSA makes its final decision. Specifically, we found:

- There is relatively little justification for positions taken.
- Positions appear to be at odds with the available evidence and regulatory precedent (for example, the recommended imposition of the -2% continuous efficiency target which is up to 8 times higher than recently applied elsewhere in Australia as well as being applied over a broader base than used by any Australian regulator).
- Cardno's advice to ESCOSA is inconsistent with the advice it has provided previously in other regulatory processes (for example, on the appropriate value of opex continuing efficiency, the base over which efficiency targets are applied, and the use of real input cost escalators). While we accept consultants can change their view over time, we would expect an acknowledgement and justification of this which is lacking in Cardno's advice.
- A number of regulatory precedents have been misrepresented, either directly (for example, the IPART efficiency targets which also includes catch-up efficiency and are only applied to controllable operating expenditure) or by omission (for example, the recent use of cost escalators by regulators other than IPART). This calls into question the reliability of the advice.

We consider that these shortcomings in Cardno's advice merit amendments in ESCOSA's final decision.

Part A: Efficiency targets

1 Background

ESCOSA, in common with other economic regulators in Australia and elsewhere which regulate prices and service levels provided by monopoly suppliers, derive a notional ‘revenue requirement’ designed to allow sufficient revenue to the business to recover the efficient costs of supplying services and meeting its regulatory obligations.

As part of this overall revenue requirement, regulators typically form a view on the ‘prudent and efficient’ level of operating and capital expenditure. Efficiency targets are often used by regulators to constrain the level of operating and capital expenditure it allows regulated businesses to recover in their revenue requirement.

This section discusses ESCOSA’s draft decisions (ESCOSA 2013) on annual efficiency targets for SA Water for the 2013-14 – 2015-16 regulatory period.

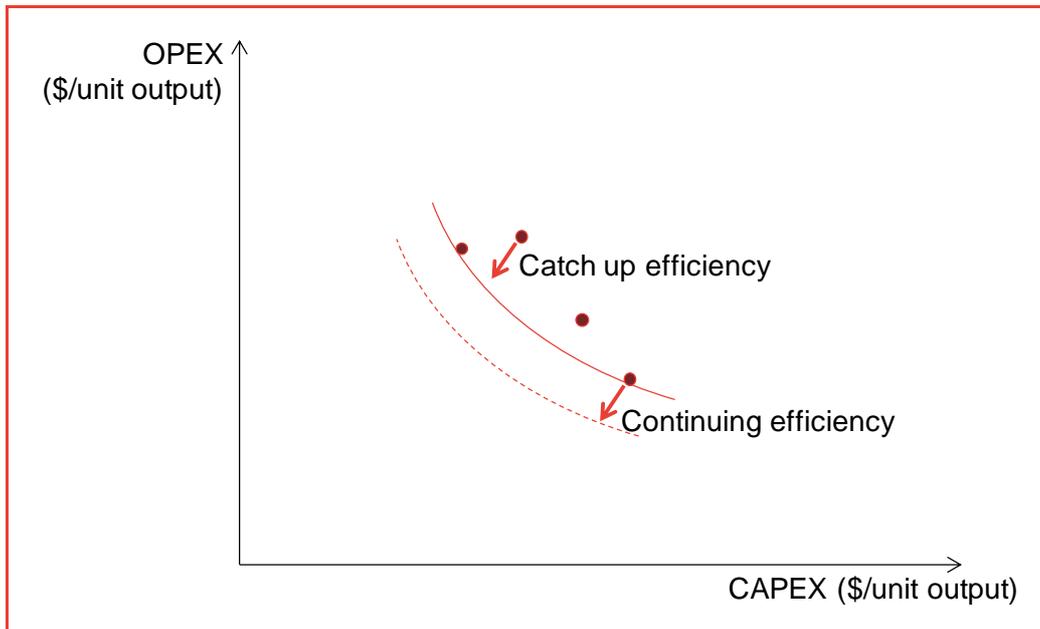
What are efficiency targets?

Efficiency targets relate to catching up to and staying on the ‘efficiency frontier’ representing the level of output that can be delivered with the minimum combination of inputs by ‘best practice’ businesses.

As noted by ESCOSA these efficiency targets can be seen as comprising:

- Catch-up efficiency — getting closer to the efficient frontier — this is a firm-specific efficiency target (given their relative distance from the efficient frontier).
- Continuing efficiency — staying on the efficient frontier as it shifts over time — this is an industry-wide efficiency target that represents the efficiencies expected to be achieved by a firm on the frontier in that industry as productivity improves.

Figure 1: Continuing and catch-up efficiency over time



Source: Frontier Economics

It is important to note that each point on a frontier involves a different combination of inputs — in this case opex and capex. An important implication of this is that when developing separate efficiency targets for operating and capital expenditure there is a risk that the combined efficiency improvement required (for opex and capex) will be overstated if necessary substitutions between opex and capex are not taken into account.

For example a company may invest in capital that allows it to reduce future opex, or choose to raise opex and to save on capital expenditure. The true indication of any cost savings would be determined by reference to reductions in total expenditure over time rather than any one component of expenditure in isolation from its impact on the other in a given year.

ESCOSA's proposed efficiency targets

ESCOSA has accepted Cardno's (2013) recommendation to apply annual efficiency targets separately to SA Water's capital and operating expenditure.

Table 1: ESOSCA's draft decision

	CAPEX	OPEX
Catch up efficiency target	-0.6%	0%
Continuing efficiency target	-0.5%	-1.0/-2.0/-2.0%*

Source: ESCOSA (2013). Note: * -1% in 2013-14 and -2% thereafter.

It is important to note that these annual efficiency savings are cumulative. Across the three year period, the cumulative impact of the efficiency targets in the draft decisions are large — \$20.3 million for capital expenditure and \$39.0 million for operating expenditure (see Table 2 and Table 3).

Table 2: Impact of proposed capex efficiency targets

	2013-14	2014-15	2015-16
Continuing efficiency target	-0.5%	-0.5%	-0.5%
Catch-up efficiency target	-0.6%	-0.6%	-0.6%
Cumulative target	-1.10%	-2.18%*	-3.26%
\$ value of efficiency targets	-\$3.5m	-\$6.8m	-\$9.9m
Total \$ value of targets	-\$20.3m (across three year period)		

Note: *Cardno (2013) report this as -2.19%, however this appears to be a rounding error of -2.18198%
Source: ESCOSA 2013, Table 7-16, p. 66.

Table 3: Impact of proposed opex efficiency targets

	2013-14	2014-15	2015-16
Continuing efficiency target	-1.0%	-2.0%	-2.0%
Catch-up efficiency target	0.0%	0.0%	0.0%
Cumulative target	-1.0%	-2.98%	-4.92%
\$ value of efficiency targets	-\$4.4m	-\$13.0m	-\$21.5m
Total \$ value of targets	-\$39.0m (across three year period)		

Source: ESCOSA 2013, Table 8-34, p. 106.

Criteria for assessing efficiency targets

In assessing the proposed efficiency targets the overarching question should be whether the resultant allowed opex and capex would accurately represent the efficient costs of SA Water providing its services and meeting its obligations.

While it is important that prices to customers should reflect no more than the efficient costs, it is also important, and in the long-run interests of customers, that the prices enable a regulated business to finance its functions. If efficiency targets imposed by the regulator are unrealistic there is a risk that the business will be unable to provide the services to the standards required and/or its financial position will be undermined.

Given the materiality of the proposed efficiency savings, it is vital that they are robust and realistic. Regulatory best practice would require that they represent ‘reasonable’ estimates of what is achievable, the underlying reasons are transparent, they are internally consistent, and are consistent with accepted regulatory practice. We now look more closely and at the recommended catch-up and continuing efficiency targets.

2 Catch-up efficiency

This is a measure of the level of efficiency improvements required for a business to ‘catch up’ to the industry best practice.

Typically, the level of any ‘catch-up efficiency’ is determined via benchmarking a business with comparable peers.

In its Regulatory Business Proposal, SA Water reported the results of a number of benchmarking exercises using a number of methodologies (CLD, partial financial indicator analysis, and total factor productivity). These studies indicated that (SA Water 2012):

- Despite the significant capital expenditure incurred by SA Water in relation to drought response initiatives, its average capital expenditure on a state-wide basis can be considered efficient relative to its peers.
- When desalination capital expenditure is excluded, SA Water incurred capital expenditure per property in-line with, or slightly below its peers.
- SA Water’s TFP ranking compares favourably with other vertically integrated water utilities servicing more than 100,000 customers on a state-wide basis.
- CLD analysis indicates that SA Water (Adelaide) exhibits below-trend operating expenditure — suggesting that SA Water’s operations for metropolitan Adelaide were efficient in 2010–11.
- Partial financial indicator analysis indicates that SA Water incurs below average operating costs per property in the Adelaide metropolitan area

In addition, ESCOSA commissioned the CIE to undertake a ‘tops down’ efficiency study. This study found that SA Water has relatively high productivity compared to most of the smaller firms and about the average of the major utilities included in the sample. Excluding desalination expenditures, SA Water has the highest productivity in terms of outputs per unit of expenditure (over the last 12 years) of all utilities in the sample (CIE 2012).

Proposed operating expenditure 'catch-up' efficiency

ESCOSA proposes to accept Cardno's advice that no catch-up efficiency factor should be applied to SA Water's operating expenditure for the initial regulatory period (p. 105), based on multiple sources of evidence that SA Water performs at the efficient frontier, including:

- the three benchmarking studies reported in SA Water's Regulatory Business Proposal
- the NWC's National Performance Report 2010/11 for Urban Water Utilities
- a study commissioned by ESCOSA from CIE.

We support ESCOSA's conclusion that SA Water's operating expenditure is efficient and should not be subject to a catch-up efficiency target.

Proposed capital expenditure 'catch-up' efficiency

ESCOSA has proposed to accept Cardno's recommendation that a 'moderate' efficiency catch-up efficiency factor should be applied to SA Water's capital expenditure.

With regard to catch-up efficiency, Cardno identified four areas where it believes that SA Water could more efficiently deliver its proposed capital expenditure by improving its business practices, as follows:

- Under the new metropolitan Adelaide service delivery outsourcing arrangements, SA Water has taken back asset management functions for metropolitan assets, which will allow SA Water to better understand its assets, and their needs for renewal and replacement.
- Improving the depth of asset information held in Maximo (asset management software), to allow SA Water to undertake more quickly, and more fully, appraisal of needs identified for further investigation.
- More rigorous treatment of cost contingencies, including setting out specific guidelines for their incorporation in cost estimates, monitoring them at a program level, and moving to a risk-based approach to estimating contingencies.
- Adopting a higher level, portfolio approach to managing and delivering the capital works program. This may identify opportunities to achieve the outcomes desired from the capital works program at a lower cost. Cardno noted that SA Water was already moving in this direction.

Cardno deemed that each of these provided the opportunity for a 0.15% reduction in capital expenditure. Based on the four opportunity areas outlined above, Cardno suggested that capital expenditure could be reduced by 0.6% per annum across the three-year regulatory period.

Each area represents a total reduction in capital expenditure of \$1.57 million across the three-year period, or \$6 million in total.

Cardno's recommendation is based on the assumption that capital expenditure can fall without any trade off (increase) in operating expenditure. We have a number of concerns with this assumption:

- There is nothing in the efficiency studies cited above, which considered capital and operating expenditure, which suggests that SA Water's capital expenditure was any less efficient than the levels of operating expenditure. That is, those studies did not identify that SA Water's capital expenditure was well away from the efficient frontier.
- Cardno provides no evidence for the basis of these proposed capital expenditure savings, which appear to be arbitrary. SA Water's submission identifies that the savings have already been realised and/or have already been incorporated into the RBP 2013.

3 Continuing efficiency

3.1 Background

As noted above, continuing efficiency is where the regulator assumes that the industry benchmark itself will become more efficient over time (Ofwat 2009, p. 106). As such, it relates to expected changes in industry-wide productivity.

The continuing efficiency assumptions adopted by ESCOSA on the advice of Cardno (2013) are presented in Table 4. These are compared with:

- Reckon (2008) who was engaged by Ofwat. Reckon forecast a rate of growth of -0.5% and 0% per cent per year for capital and operating expenditure, respectively. As noted by Reckon, it is important to keep a clear distinction between such projections on future unit expenditure trends for industry-level expenditure from projections of future unit expenditure trends for frontier companies (and the related idea of "continuing efficiency" improvements). Our understanding is that it does not represent an estimate of the future frontier shift, but rather a forecast of the scope for efficiency improvements in capital costs across all businesses (those at the frontier of the industry and all others), based on historical trends. As a result the estimate includes continuing efficiency improvements and also implicitly includes catch-up efficiency improvements.

It should also be noted that the regulatory decision of Ofwat (2009) which commissioned Reckon (2008) did not use the value of -0.5% but rather a more conservative value.

- ERA of WA for their Water Corporation review. The ERA does not recommend an efficiency target on the Water Corporation's capital expenditure. Rather, in each pricing inquiry the ERA reviews what is proposed by the Water Corporation and provides recommendation on an efficient level of capital expenditure for the next pricing period. The ERA only applies the -2% opex target on base operating expenditure, and not "level of service" operating expenditure.

Table 4: The magnitude and source of ESCOSA's continuing efficiency assumptions

	CAPEX continuing efficiency (shift in frontier)	OPEX continuing efficiency (shift in frontier)
ESCOSA draft determination (Cardno)	-0.5%	-1.0/-2.0/-2.0%
Reckon (2008 - UK)	-0.5%*	0%
ERA (WaterCorp proposed - WA)	0%	-2.0%

Notes: *Reckon (2008) estimate the rate of growth in water and sewerage unit capital expenditure.

The following discussion examines several aspects of these proposed efficiency targets:

- The proposed continuing efficiency target for capex.
- The proposed continuing efficiency target for opex.
- The combined proposed continuing efficiency target.

3.2 Proposed continuing efficiency target — capex

ESCOSA has proposed that a -0.5% continuing efficiency target be applied to SA Water's capital expenditure, excluding capital works which are already contracted for the period, and capital projects proposed by SA Water in its RBP but disallowed by ESCOSA. Its Draft Determination states that:

On continuing efficiency, it is the Commission's view that it is appropriate to set a target to reflect the continuing improvements that will undoubtedly be available over time in the areas of technology, innovation, productivity and procurement. The proposed target of 0.5% per annum, based on a detailed study carried out for Ofwat, and applied to comparable entities in the UK, is considered reasonable.

This position reflects advice provided to it by Cardno (2012) which bases its recommendation to apply a -0.5 per cent annual continuing efficiency factor to SA Water's capital costs entirely on a study of UK water businesses undertaken by Reckon LLP for Ofwat in 2008 (Reckon 2008).

We have a number of serious concerns with ESCOSA's proposal to accept this recommendation:

- The Reckon LLP estimate (as acknowledged by Reckon) does not represent an estimate of the future frontier shift (continuing efficiency), rather it represents a forecast of the scope for efficiency improvements in capital costs at an industry level, based on historical trends. As a result it implicitly includes catch-up efficiency and -0.5% therefore overstates the possible level of ongoing efficiency.
- Ofwat (2009) itself did not adopt the -0.5% efficiency target in its 2009 determination. Rather, Ofwat applied a continuing efficiency target for all companies of -0.4% a year for all capital expenditure incurred during 2010-15; of -0.25% a year for the 2015-25 period; and 0% a year beyond 2020. It is also important to note that this -0.4% target for 2010-2015 is with respect to a middle ranking company, rather than a 'frontier' business. Therefore the target for a frontier company, of which SA Water is one, based on the studies outlined above, was more moderate.

In addition, the study is over 5 years old and relates to UK businesses, which means that considerably more care must be taken when applying those findings to SA Water.

We find it surprising that Cardno did not appear to survey more recent and relevant evidence of regulatory practice in Australia. Such analysis would have revealed that in recent price determinations by economic regulators in Australia in the water industry, including IPART's review of Sydney Water in 2012, the ESC 2012 review, and the ERA 2013 review of the Water Corporation, none applied across-the-board capital expenditure efficiency targets. Rather than relying, for example, on the study by Reckon, these regulators all undertook a 'bottoms up' review of proposed capex, which resulted in a number of capex projects being disallowed from the revenue requirement as not representing prudent and efficient expenditure. None applied an additional efficiency factor to this revised capital program as ESCOSA is proposing to do in the current Draft Determination for SA Water.

The only determination in which a continuing efficiency assumption was applied to capex was in the IPART determinations for Sydney Water in 2008 and for Hunter Water in 2009, on both occasions on the advice of Cardno (again based on the 2008 Reckon LLP report). IPART has not adopted this approach in its more recent determinations.

3.3 Proposed continuing efficiency target — opex

ESCOSA draft decision accepts Cardno's advice to apply a continuing efficiency factor to SA Water's operating expenditure of -1% in 2013-14, rising to -2% p.a. for 2014-15 and 2015-16 to reflect the continuing improvements it says will be

available over time in the areas of technology, innovation, productivity and procurement. Further, it proposes to apply this efficiency factor to SA Water's entire operating expenditure, after netting off any efficiencies identified in a 'bottoms up' analysis.

As noted above, these efficiency targets are material and will result in a substantial reduction to operating expenditures, making it vital that they are robust. In our view there are a number of considerations that suggest that they are not. These relate to:

- the magnitude of the proposed continuing efficiency target
- the base to which this target is applied.

3.3.1 The magnitude of the proposed continuing efficiency target

The -2% continuing efficiency target appears to be based solely on the precedent from WA of the draft decision by the ERA related to the Water Corporation (ERA 2012). As shown by the comparative table in Cardno's report, this efficiency target is clearly an outlier and much higher than those applied by other regulators in Australia (Table 5).

Table 5: Cardno's reported opex efficiency targets in other Australian jurisdictions

Regulator	Regulated business	Year	Annual operating cost efficiency (average only)
IPART	Sydney Water	2008	0.7%*
IPART	Sydney Water	2011	0.91%*
ERA	Water Corporation	2012	2%^
ESC	All Victorian water businesses	2012	1%

Source: Cardno 2013, Table 7-17, p. 65.

Notes: * Cardno does not provide table notes for these items, however these efficiency targets relate to continuing and catch-up efficiency applied to only controllable operating expenditure.

^ Cardno provides a table note stating that the efficiency target is proposed to apply to all operating expenditure, however the final decision (ERA 2013) was to only apply it to base expenditure.

One would therefore expect a strong case to be made for the imposition of the highest presented efficiency target, but this is not the case. Indeed, it seems that Cardno have failed to identify a number of important factors that would suggest a much lower continuing efficiency target, if any, would be more appropriate.

First, the main justification for the -2% efficiency factor for the Water Corporation was the high growth rates in Water Corporation customer numbers:

In reviewing the Water Corporation's operating expenditure, Cardno concluded that the 2.0 per cent annual efficiency target on base operating expenditure is an appropriate efficiency target to implement over the 2013/14 to 2015/16 period. Specifically, Cardno noted "we consider that a 2% annual efficiency target on base operating costs is achievable in the short term without a significant stretch by the Corporation, **mainly due to the large impact of economies of scale while growth rates remain steady**". (ERA 2013, p. 48) [emphasis added]

SA Water's forecast annualised growth rate for residential customers of 1.4% (SA Water 2012, p. 55) is much lower than the Water Corporation's expected metropolitan customer growth of 2.1% to 2.3% per annum in 2013-14 to 2015-16 (ERA 2013, p. 40). All else being equal, this would indicate a lower continuing efficiency target.

Second, the continuous annual efficiency targets proposed by the regulators in other jurisdictions in recent determinations for the water industry are much lower than -2%. In our view, this is best demonstrated in a manner such as Table 7 on page 15 of our report. (The result may seem apparent from the comparative table presented in the Cardno report, however these reported figures are not all continuing annual efficiency targets. For example, the 0.91% reported value for IPART (2012) in fact comprises both the 'catch-up' and continuing efficiency factors — the relevant continuing efficiency target from IPART (2012) is actually -0.25%.)

Third, it is noteworthy that in 2012 Atkins-Cardno advised IPART that -0.25% was the appropriate target for opex continuing efficiency for a water business:

We agree that the opex efficiency targets are challenging. Our assessment is based on a continuing efficiency of 0.25% per annum, the same as applied by Ofwat in the 2009 Determination. (Atkins Cardno letter to IPART, 14 February 2012., quoted in IPART 2012, p. 65)

IPART accepted this value. We note that the IPART acceptance of -0.25% as an appropriate opex continuing efficiency target for an Australian water business is not presented in the Cardno report to ESCOSA.

This is particularly relevant because continuing efficiency targets should represent the efficiencies expected to be achieved of a firm on the frontier in that industry and therefore should be considered in the context of likely industry-wide achievements.

It is therefore difficult to understand how Cardno arrived at their recommendation that SA Water should be able to achieve continuing efficiency targets of four (-1%) to eight times (-2%) that proposed in NSW in 2012. In its report it concludes (p. 67) as follows:

We have had to make a judgement on efficiency based upon the evidence we have seen at SA Water and in our experience elsewhere. We recognise that this is the first regulatory submission being made by SA Water and we think it is important that there should continue to be both internal and external challenges to its cost base in relation to both its risk profile and the maintenance of service standards.

This conclusion seems to infer that SA Water should be able to secure additional efficiencies well above those applying in most jurisdictions because it has not before been subject to independent economic regulation. This ignores the fact that:

- SA Water has been subject to both stringent internal review processes and external review through the Government's Transparency Statement process over a number of years
- a continuing efficiency target must be set according to what can be achieved across the industry as a whole.

More fundamentally, such a conclusion is completely at odds with Cardno's earlier conclusion based on multiple studies that SA Water performs relatively well when benchmarked against industry peers and thus is on or close to the efficiency frontier and that no catch-up efficiency target should be applied to SA Water's opex.

In recommending a continuing efficiency target that is orders of magnitude higher than that accepted as what can be achieved elsewhere in the industry, simply because this is SA Water's first regulatory review, Cardno appears to be second guessing its prior recommendation that no catch-up efficiency target is required.

The Cardno report also states its understanding that the SA Water submission did not assume any ongoing or catch-up efficiency factor in its proposed operating expenditure to 2015-16. However, it also notes that it does appear that many of the operational efficiencies referred to in the Company submission are already embedded within the base position and current year 2012-13. Our understanding is that SA Water has incorporated efficiencies totalling \$27 million over the regulatory period (pers. comm. SA Water, 12 March 2013).

Where these efficiencies are already incorporated in base expenditure projections they should not be subject to a further efficiency factor. The appropriate regulatory approach, as used by IPART, is that identified efficiencies should be netted out from expenditure to which efficiency targets are applied (see below).

3.3.2 The base to which the efficiency target is applied

The second major issue with the proposed continuing efficiency targets for opex relates to the base to which they are applied and in particular:

- whether the target is applied to all operating expenditure or is confined only to 'controllable' or 'base' operating expenditure
- whether any specific efficiencies identified through a 'bottoms up' analysis are netted off the base prior to the application of the efficiency factors.

‘Controllable’ or ‘base’ operating expenditure

Good regulatory practice is to apply continuing efficiency targets only to defined components of expenditure, which are described below. In contrast, ESCOSA’s draft decision is to accept Cardno’s advice and apply the (very high) continuing efficiency factor to all of SA Water’s operating expenditure.

One approach adopted by a number of regulators is to apply efficiency targets only to controllable expenditure. For example, in both its 2008 and 2012 Determinations for Sydney Water, IPART applied efficiency factors only to Sydney Water’s controllable costs, which represented only about 38% of its expenditure base. Notably, IPART (2012) accepted advice provided to it by Atkins Cardno (2011, p.90) for such an adjustment “to reflect that a significant proportion of Sydney Water’s costs are not controllable”. It is therefore somewhat perplexing as to why Cardno (2013) have not proposed that continuing efficiency savings should be applied only to SA Water’s controllable costs. We expect that SA Water’s controllable costs would be broadly aligned with the proportion in NSW water businesses.

Applying efficiency targets only to controllable expenditure would also be consistent with Cardno’s assessment that continuing efficiency targets for capex should exclude capital works which are already contracted for the period.

It is also perplexing that in documenting operating expenditure efficiency targets in other Australian jurisdictions in table 7-17 of its report for ESCOSA that the fact that the IPART (2009 and 2011/2012) targets applied only to controllable expenditure is not reported, in contrast to the entries for the ERA and the ESC where the base to which the targets are to be applied is reported.

In the case of the ESC, Cardno (2013) reported the ESC (2012) guidance material provided for a 1% annual operating cost efficiency target and noted that this applied only to baseline operating expenditure. The more fulsome context of the ESC guidance material is that the ESC specifically attributes this efficiency target to controllable costs:

Businesses should also be disciplined by a desire to improve efficiency and manage **controllable costs**. The Commission requires all businesses to achieve a minimum of 1 per cent per year productivity improvement on its baseline operating expenditure. [p. 33, emphasis added]

In the case of the ERA, Cardno (2013) noted that this has historically been a self-imposed target that the regulator has chosen not to exceed. It also noted that while it has previously applied only to ‘base’ expenditure, the ERA (2012) draft decision proposed to apply it to all operating expenditure following a rise in non-base expenditure. Since Cardno’s report, the ERA has released its final decision. In it, the ERA (2013, p. 23) recommended that:

the Water Corporation's tariffs be set in accordance with the assumption that it achieves an ongoing efficiency in real base operating costs per connection of 2.0 per cent per year.

In addition to base operating expenditure, the Water Corporation incurs "level of service" operating expenditure. Level of service operating expenditure is loosely defined as expenditure undertaken to improve the Water Corporation's service standards above a base level that existed in 2005 (the time of the first water pricing inquiry). **There is no efficiency target applied to level of service operating expenditure.** [emphasis added]

Therefore it is important to note that the ERA target of -2% does not apply to all operating expenditure. The base operating expenditure of Water Corporation is in the order of 65%-74% of total operating expenditure (Table 6).

Table 6: Water Corporation (WA) elements of operating expenditure

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Efficient Base Operating Expenditure	479.9	486.4	497.2	572.7	592.4	615.8
Efficient Level of Service Operating Expenditure	171.1	194.5	270.4	305.6	307.0	304.1
Total Efficient Operating Expenditure	651.0	680.8	767.6	878.3	899.4	919.9
Base proportion of total opex	73.7%	71.4%	64.8%	65.2%	65.9%	66.9%
Equivalent efficiency target over total opex (as 2% target over base opex)	1.5%	1.4%	1.3%	1.3%	1.3%	1.3%

Source: ERA 2013, Table 18, p. 51; Frontier analysis.

On the basis of the material presented above, in our view it would be inconsistent with regulatory precedent and Cardno's own previous analysis to apply a continuing efficiency factor to SA Water's entire operating expenditure, as proposed in ESCOSA's Draft Determination.

Netting off identified efficiencies from 'bottoms up' analysis

The approach taken by other regulators is to take into account identified efficiencies from 'bottoms up' analysis when applying efficiency targets on operational expenditure. This avoids a doubling up of efficiency obligations which would lead to lower than required operational expenditure being available for SA Water's operations.

For example, IPART has decided to make allowance for efficiencies already identified by Sydney Water.

In our view, ESCOSA should adopt a similar approach under which identified efficiencies are netted out from efficiency targets.

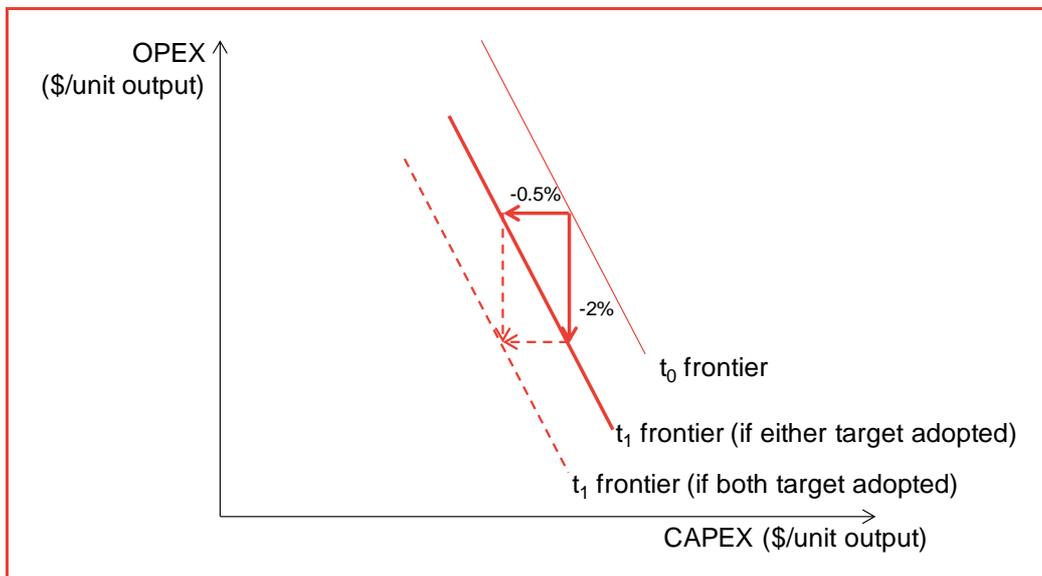
3.4 Overall continuing efficiency targets

Table 7 brings together the characteristics of ESCOSA's draft decision based on Cardno's advice on continuing efficiency and compares this to other regulator's treatment of other Australian water businesses.

In our view, this table demonstrates that the continuing efficiency values advised by Cardno are higher than established regulatory precedent and, because comparably high efficiency targets are adopted for both capex and opex, the resultant effect is to impose unrealistic efficiency targets on SA Water (Figure 2). Once again, it is not evident from Cardno's report that they have considered the interaction between capital and operating expenditure in Australian water businesses.

We consider the excessively high targets recommended by Cardno, and their justification (or lack of) for being applied to SA Water, should be carefully reconsidered before ESCOSA makes its final decision.

Figure 2: The interaction between opex and capex efficiency savings



Source: Frontier Economics.

Table 7: CAPEX and OPEX continuing efficiency assumptions

	CAPEX continuing efficiency (shift in frontier)			OPEX continuing efficiency (shift in frontier)		
	Controllable	Non-controllable	Account for identified efficiencies	Controllable	Non-controllable	Account for identified efficiencies
ESCOSA draft determination (SA Water)	-0.5%	0%	-	-1.0/-2.0/-2.0%	-1.0/-2.0/-2.0%	?
IPART 2012 (Sydney Water Corp)	0%*	0%*	-	-0.25%	0%	✓
ESC 2012 (all Victorian businesses)	0%#	0%#	-	-1.0%	0%##	✓
ERA 2013 (WaterCorporation)	0%^	0%^	-	-2.0%	**	?
IPART 2009 (Hunter Water)	-0.5%	0%	-	-0.8%	0%	✓
IPART 2008 (Sydney Water Corp)	-0.5%	0%	-	-0.8%	0%	✓

Notes: * IPART 2012 appears to assess the efficiency of proposed investment directly, rather than applying efficiency target.

Our understanding is that ESC assess the efficiency of proposed investment directly, rather than applying efficiency target.

The ESC Guidance material presents the efficiency target on base operating expenditure in the context of only controllable costs.

^ The ERA does not recommend an efficiency target on the Water Corporation's capital expenditure. Rather, in each pricing inquiry the ERA reviews what is proposed by the Water Corporation and provides recommendation on an efficient level of capital expenditure for the next pricing period.

** The ERA only applies the -2% on base operating expenditure, and not "level of service" operating expenditure.

Part B: Real input cost escalators

4 Introduction

SA Water included real input cost escalators in its Regulatory Business Case based on independent advice from Evans and Peck. These escalators were estimated for each of labour, materials and contracted services and applied to the capital (Table 8) and operating (Table 9) expenditure for the forthcoming regulatory control period.

When applied to SA Water's capital expenditure forecast, the cumulative impact is an increase in the total capital expenditure proposed by SA Water of approximately \$25 million for water services, and \$24 million for sewerage services.

When applied to SA Water's operating expenditure forecast, the total impact over the three year period is an increase in the total operating expenditure proposed by SA Water of approximately \$13.2 million for water services, and \$6.8 million for sewerage services.

Table 8: Forecast of real capex input cost escalation provided by Evans & Peck (annual % expressed in real terms)

	2012–13	2013–14	2014–15	2015–16
Labour	1.66	1.70	1.74	1.77
Materials	1.41	1.55	1.70	1.84
Contracted Services	1.37	1.46	1.56	1.64

Source: SA Water RBP, Table 6-4, p. 86.

Table 9: Forecast of real opex input cost escalation provided by Evans & Peck (annual % expressed in real terms)

	2012–13	2013–14	2014–15	2015–16
Labour	1.66	1.69	1.74	1.77
Materials	-2.22	-1.66	-1.1	-0.48
Contracted Services	0.18	0.27	0.38	0.48

Source: SA Water RBP, Table 7-2, p. 134.

In its report for ESCOSA, Cardno (2013) rejected the use of specific cost escalators (with the exception of increases in electricity costs above CPI), and

proposed that only projected CPI increases should apply to SA Water's costs unless exceptional circumstances could be shown to exist. The reasons given included:

- In its view, and its understanding of what is consistent with regulatory decisions in other jurisdictions, any escalation above CPI in these costs is wholly a business risk issue – any risks relating to input cost moving above or below inflation from time to time should sit with regulated entities.
- Although input prices are typically quite volatile, over the medium and long term, they tend to follow the movement in general inflation.
- There is no evidence of the South Australian or Australian economy being in a state of high growth that could lead to the movement in the price of these inputs significantly exceeding their long-term trend to broadly follow general inflation.
- Allowing real cost escalation above CPI would weaken the incentive inherent in CPI-X regulation to generate cost savings.
- Mitigating the risks of electricity cost increase (by allowing these costs to increase above CPI) reduces any pressure faced by the business due to increased costs in other areas.

In its draft decision, ESCOSA accepted Cardno's recommendation. The impact of this draft decision on SA Water's revenue requirement is a -\$49.1 million adjustment to capex and a -\$20.9 million adjustment to opex (ESCOSA 2013, Table 7-12 p. 60 and Table 8-7 p. 79, respectively).

We believe the decision to adopt Cardno's recommendations needs to be reconsidered on the basis that:

- There is strong regulatory precedent for the use of specific cost escalators.
- Cardno's assertion that input prices trend to inflation in the long run is incorrect. Wage growth has not equalled CPI in the past 15 years, and is not expected to in the future.
- There is strong evidence that the price of SA Water inputs will significantly exceed general inflation.

These are discussed more below.

5 The use of cost escalators by regulators

We take issue with Cardno's advice to ESCOSA (p.76) that its decision to not allow cost escalators is "in line with that taken by other regulators in Australia". It cites IPART as the representative Australian regulator and the use of RPI in the UK regulatory regime in support of its contention that "based upon the

experience we have seen elsewhere in the UK and for example, the regulatory framework in NSW, as administered by IPART” regulators see movements in cost indices above or below CPI as “wholly a business risk issue”.

This does not seem to us to be an accurate representation of regulatory practice and sentiment more generally. A number of other regulators not cited by Cardno have used, or are considering, real cost escalators to ensure that regulated revenues are in line with business characteristics.

For example, the ESC adopted a real wage escalator of 1.25% on opex in the 2008 review of Victorian rural and regional water businesses (ESC 2008 p. 41), and a real wage escalator of 1.5% in the 2009 review of metropolitan water businesses (ESC 2009, p. 32). The ESC guidance material flagged the issue as relevant for the current price review (2012, p. 39):

For the 2008 and 2009 price reviews, most businesses allowed for nominal wage increases of 4 per cent per year. Based on information at the time, the Commission adopted a real increase of 1.25 per cent per year and outlined that any growth forecasts above this level would be adjusted downward.

Businesses should use the latest information to forecast real wage and cost growth for the third regulatory period. Water Plans must include annual forecasts of wage cost growth. Assumptions regarding forecast wages growth should be made clear.

The Reserve Bank of Australia found that wages growth is reasonably stable, noting the Australian Bureau of Statistics Wage Price Index increased by 3.8 per cent in nominal terms over the year. ...

The [ESC] will assess businesses’ proposals on wages growth using the best information on actual and projected wages growth and growth expectations available when we make our final decision (expected in May 2013).

Although ERA did not adopt real price escalators in the recent decision for Water Corporation, the ERA acknowledged their relevance, stating that:

On consideration of this matter, the Authority accepts in principle the argument that the escalation of costs incurred by the Water Corporation may differ to the escalation of the CPI. (ERA 2013, p. 52).

Further, ERA acknowledged the potential negative consequences of imposing a CPI-based target which is a poor fit to business characteristics (ERA 2013, p. 49):

Generally regulators are reluctant to alternate between the use of different cost indices as it can lead to instances of regulatory gaming. However, **the Authority acknowledges that the Water Corporation’s claim that the prices that it pays for its operational inputs may have risen faster in recent years than the 8-cities CPI and may continue to do so in coming years. If this is the case, and assuming that it continues to be the case into the future, then at some point the imposition of a CPI-based target would impact on the Water Corporation’s ability to deliver services.** However, it may not always be the case that the Water Corporation’s OCI would grow at a faster rate than the 8-cities CPI. [emphasis added]

Another recent and relevant example is the AER's regulation of South Australian electricity transmission business ElectraNet. The AER's draft decision in November 2012 accepted a large range of real cost escalators (AER 2012, Table 1.1, p. 54). A feature of the current AER/ElectraNet review is the debate on the appropriate choice of labour cost escalator (i.e. whether the labour index be constructed from labour force characteristics of the electricity, gas and water sector with or without the inclusion of waste services). Whether or not an escalator should be used in preference to CPI is not under debate. The AER's draft decision proposes the following:

Table 10: AER draft decision, ElectraNet proposed and SA Water proposed labour cost escalators (%)

	2013-14	2014-15	2015-16	2016-17	2017-18
AER draft decision on real cost escalators					
Internal labour	2.0	2.0	0.7	0.7	1.0
External labour	1.7	1.1	0.6	0.2	0.5
ElectraNet's real cost escalation forecasts					
Internal labour	2.0	2.0	2.3	2.5	2.8
External labour	3.1	2.6	1.9	2.5	3.0
SA Water's real cost escalation forecast					
Internal labour	1.70	1.74	1.77	-	-

Source: AER 2012, Table 1.1, p. 54.

The SA Water proposed values are more modest than those in the AER draft decision, except for 2015-16. The AER/Electra wage expectations are relevant to SA Water since they relate to employees in the Electricity, Water and Gas (and Water Services) sector in South Australia.

Cardno's recommendation to reject the use of specific cost escalators is inconsistent with its own advice to ICRC regarding ACTEW (Cardno 2012), where it advised to revise real cost escalators proposed by ACTEW and include them in the forecast of operating expenditure.

Table 11: ACTEW proposed, Cardno proposed and SA Water proposed labour cost escalators for operating expenditure (%)

	2013-14	2014-15	2015-16	2016-17	2017-18
Cardno's proposed revised real cost escalator for ACTEW					

General labour	2.5	1.3	1.5	1.5	1.5
ACTEW's proposed real cost escalator					
General labour	2.5	1.3	1.5	1.9	2.2
SA Water's real cost escalation forecast					
Internal labour	1.70	1.74	1.77	-	-

Source: Cardno 2012.

The ACTEW/Cardno wage expectations are relevant to SA Water since they relate to employees in a water business, however, the values do take into account ACT labour market conditions.

We note that Cardno (2013) claim that regulated businesses can manage risks of costs varying from CPI. But Cardno itself states (p.63) that:

If a regulated business faces input costs higher than CPI during the regulatory period it may find itself in financial distress as it tries to deliver services while facing higher costs and fixed revenues. Conversely, where input costs are lower than CPI, the regulated utility will make extraordinary profits that it is not compelled to share with its customers.

This implies that if it is reasonably expected that a regulated business faces input cost rises higher than CPI during the regulatory period then, in order to avoid foreseeable financial distress, these input cost expectations should be incorporated into pricing decisions. We consider the likelihood of input cost growth exceeding CPI below.

6 Relationship between input costs and the CPI

Cardno (2013) advised ESCOSA to reject the use of real cost escalators is that, in the long run, input prices will follow general inflation. For example, Cardno made the following statement:

There is no evidence of the South Australian or Australian economy being in a state of high growth that could lead to the movement in the price of [opex] inputs significantly exceeding their long term trend to broadly follow general inflation. (p. 64)

There is no theoretical basis for assuming that other long-term trends in other inputs must conform to CPI, let alone for the 2013-14 to 2015-16 determination period. Evans and Peck demonstrated that SA Water's input costs are derived from three specific input types Labour, Materials and Contracted Services. This is

significantly different from the basket used to construct the CPI index. The ABS (6401.0 Dec 2012) describe the CPI, and its component elements, as:

The simplest way of thinking about the CPI is to imagine a basket of goods and services comprising items bought by Australian households. Now imagine the basket is purchased each quarter. As prices change from one quarter to the next, so too will the total price of the basket. The CPI is simply a measure of the changes in the price of this fixed basket as the prices of items in it change.

The total basket is divided into 11 major groups, each representing a specific set of commodities:

- Food and non-alcoholic beverages
- Alcohol and tobacco
- Clothing and footwear
- Housing
- Furnishings, household equipment and services
- Health
- Transport
- Communication
- Recreation and culture
- Education
- Insurance and financial services.

In the case of the Australian CPI, this methodology involves devising a basket of goods and services representative of those acquired by metropolitan private households during the course of a full year.

It is clear that all of the components of CPI are not relevant to SA Water's input costs, and that some important drivers are excluded from CPI. For example, labour is not a significant purchase by households, and therefore not included directly in the CPI basket. In comparison, labour costs comprise 30%¹ of SA Water's operating expenditure.

This section considers the relationship between labour costs and CPI, and then considers other inputs.

6.1 Labour costs

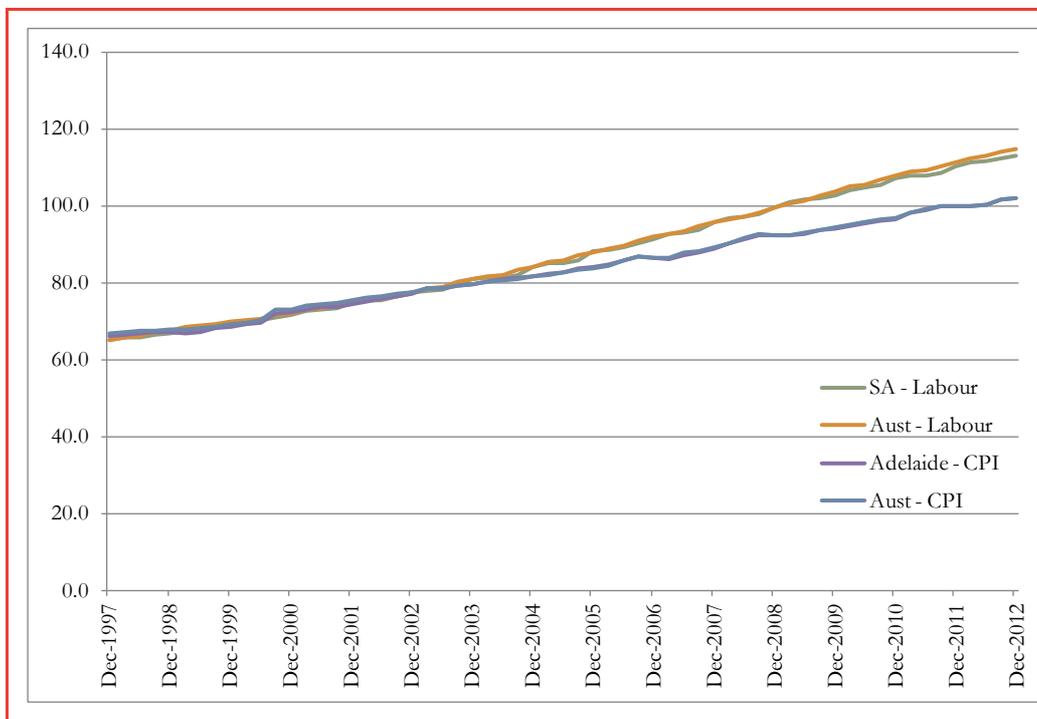
Labour cost growth has been higher than CPI for the past 15 years (Figure 3).

The most recent information from the Australian Bureau of Statistics (ABS) is the release on price and wage developments to the end of the December 2012 quarter. This identified that the wage price index rose by 3.4 per cent over the past year (ABS 6345.0), while the CPI rose by 2.2 per cent (ABS 6401.0).

¹ 'Direct labour' as per Cardno (2013, Figure 7-1, p. 46).

Cardno's proposition that the cost of SA Water's labour inputs do not significantly exceed the long term trend of general inflation is not borne out by the evidence.

Figure 3: Wage growth has been greater than CPI to December 2012



Source: ABS 6401 and 6345.

6.2 Other input costs

Cardno (2013) raise some legitimate concerns with the impact of developments since the preparation of the Evans and Peck escalators, namely the decision to not proceed with Olympic Dam mine development:

We acknowledge that there is evidence to suggest that construction costs in South Australia in the period to 2015/16 will experience real cost increases comparable to that seen over the last 5 years. However, we believe that, on the balance of probability construction costs will respond to the highly significant deferral of the Olympic Dam expansion project; noting that this deferral has almost halved total construction demand in the state. (p.75)

If ESCOSA accept this finding, then an appropriate decision may be to set an expectation that construction costs will move in line with CPI and therefore that capex, or perhaps all, real material cost escalation should be zero above CPI. It does not necessarily follow that all real input cost escalators should be dismissed.

We also take issue with Cardno's observation (p. 64):

Considering the escalation factors in Table 7-16, the factors for materials are negative, i.e. suggesting cost decreases in the regulatory period. The other two

trends are positive and therefore lead to increased forecasts for real costs in the period. This shows that the CPI-x methodology, which allows for a flat escalation rate, can be beneficial to the business in the areas where real cost decreases are forecast.

The identification that some of the estimated real cost escalators are positive and some are negative does not lend any weight to the argument that it is acceptable for the input cost issues to be ignored. Rather, it demonstrates the appropriateness of having real cost escalators that are representative of the cost structure of the regulated firm.

7 Incentives for cost savings & cost risks

We take issue with Cardno's assertion that:

Allowing real costs escalation above CPI would weaken the incentives inherent in CPI-x regulation to generate cost savings. (2013, p. 64 and verbatim on p. 75)

In our view, the marginal incentive for a regulated business to outperform the target is the same, regardless of what target is set.

Cardno also state:

[Cardno] have agreed with SA Water's proposal to allow for cost increases relating to electricity over and above CPI. Electricity comprises one of SA Water's largest input costs risks so **mitigating this uncertainty will reduce any pressure faced by the business due to increased costs in other areas.** [emphasis added] (2013, p. 64)

We disagree with Cardno's logic, which appears to be that allowing for the increase in electricity costs above CPI means increases in other costs above CPI can somehow also be managed. This is simply wrong and highlights the benefit of using accurate cost escalators.

8 Double-counting / interactions with efficiency assumptions

We also find that Cardno's advice suffers from double-counting due to interactions between its advice on denying real input cost escalators and its advice on imposing efficiency targets.

Cardno stated (p. 68):

We think that real cost pressures related to labour, materials and contracted services will reflect the effective and prudent management by SA Water of its approach to procurement.

Our interpretation of this is that Cardno expect that the real cost pressures related to labour, materials and contracted services can be managed through capturing efficiencies in SA Water's improved management of procurement. However, Cardno has already counted on these efficiencies being made through the imposition of continuing efficiency targets that apply direct to capital and operating expenditure. If this interpretation is correct, then Cardno has double-counted the benefits from future procurement efficiencies, and these should be netted out.

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FRONTIER ECONOMICS | MELBOURNE | SYDNEY

Frontier Economics Pty Ltd 395 Collins Street Melbourne Victoria 3000

Tel: +61 (0)3 9620 4488 Fax: +61 (0)3 9620 4499 www.frontier-economics.com

ACN: 087 553 124 ABN: 13 087 553 124