Background paper
QCA review of irrigation prices

Response to QCA Consultants' Review of Opex

September 2011

Contents

1 Introduction

In January 2011, SunWater submitted its Network Service Plans (NSPs) to the Queensland Competition Authority (QCA). These NSPs presented SunWater's proposed expenditure over the regulatory period 2011/12 to 2015/16.

The QCA has engaged Halcrow, Arup, Aurecon and GHD (the consultants) to review SunWater's expenditure forecasts as presented in the NSPs. The consultants reviewed both operational and renewals expenditure forecasts.

SunWater has been provided with the consultants' reports and has been asked to comment on their findings. SunWater has provided a separate submission that addresses the higher level issues the consultants raised about forecasting methodology and availability forecast cost data at the sub-activity level.

The purpose of this paper is to provide a response to specific adjustments to operational expenditure (opex) recommended by Halcrow and Aurecon, and the potential efficiency gains indentified by GHD (although GHD did not recommend any adjustments). Arup did not make any recommendations or findings in relation to efficiencies or adjustments.

This submission is in addition to SunWater's separate paper to the QCA updating its electricity forecasts and responding to specific electricity cost issues also raised by the consultants. This paper should be read in conjunction with SunWater's separate submission about the forecasting methodology mentioned above.

This paper is structured in the form of a table that outlines the consultants' recommendations and details SunWater response. Attachments are provided that expand on SunWater's position for not accepting the consultants recommendations.

The consultants also reviewed capital expenditure (capex) and the QCA has continued its review and investigation of SunWater's past and future capex spend so that the QCA can assess prudency and efficiency and determine the relevant renewals annuity. No commentary on the consultant's findings on capex is presented here.

2 Forecast Cost Differences Inappropriately Identified as Efficiencies

Operating expenditure in SunWater's NSPs are based on forecasts developed at the activity level for each bulk water and distribution service. The forecasting methodology employed by SunWater has been described in detail in a separate 'Operating Cost Forecast submission' to the QCA[1]. Some characteristics of the methodology are re-capped in this paper to give context to the efficiency saving analysis performed by the consultants.

There are three characteristics of the forecasting methodology that are important to understand when reviewing forecast costs for efficiency savings:

1. The forecasts are forward looking and based on typical operating conditions (rather than extreme operating conditions);
2. The forecasts are affected by above-CPI increases in underlying costs e.g. labour; and
3. The forecasts are determined at activity level – operations, preventative maintenance and corrective maintenance, and not the sub-activity level.

Expected Operating Conditions

The forecasting methodology is based on SunWater's judgment of 'typical year' operating conditions for each service contract over the regulatory period. This required SunWater to use its judgment for expected operating conditions for factors such as climatic conditions, and in practice meant that extreme conditions (which can affect costs such as weed control) were not factored into the cost forecasts. As with any forecasting methodology, the resulting forecasts are different to actual historical data due to expected future operating conditions being different to average past operating conditions. If operating conditions didn't vary from year to year then forecasting would be a trivial exercise of extrapolating the past costs forward with no input required from SunWater management. As is explained in the 'Operating Cost Forecast submission', SunWater management has gone to considerable effort to accurately forecast operating costs given the expected operating conditions.

Above-CPI increases in Cost Drivers

Any increases in cost drivers that are above CPI for either the actual costs or the forecast costs will result in increases in costs in real terms above and beyond increases due to the chosen forecasting approach. For example, labour costs will increase by 1.5% in real terms in 2013 and 2014 because the labour escalator in these two years is 4% compared to the assumed CPI of 2.5% and this increase will be independent of

[1] See separate SunWater submission to the QCA, "Response to issues – operating cost forecasts", September 2011.

forecast changes in labour effort for a particular activity. In addition, SunWater's labour wage increases over the 2007-10 period have averaged just over 4%. This means that a $10,000 average labour cost over 2007-10 will have increased to a $10,419 average cost for 2012-16 (all in $2011) purely due to differences between labour escalators and CPI, not because of underlying increases in labour effort.

Analysing Forecasts at Sub-activity Level

The forecasts were determined at activity level, i.e. operations, preventative maintenance and corrective maintenance. This point was covered in some detail in the 'Operating Cost Forecast submission'. SunWater does not believe that sub-activity cost forecasts can be derived from the activity-level forecasts by any means that will result in accurate forecasts at this lower level. Therefore, any analysis that relies on sub-activity forecasts is problematic.

Understanding the Impact on the Identification of Efficiencies

The impact of each of these three characteristics of the forecasting methodology must be taken into account when considering potential inefficiencies that may exist in SunWater's forecast expenditure figures. Unfortunately, the consultants have in many cases identified apparent inefficiencies that are in fact a by-product of the forecasting methodology rather than actual inefficiencies. Differences observed between forecast cost and actual costs are typically due to differences in forecast operating conditions and differences in cost escalators. Differences uncovered through analysis of forecasts at the sub-activity level represent an inappropriate use of forecast data below the level at which its veracity can be confirmed.

The impact of the cost escalation effect has been examined by SunWater at the portfolio level for the 30 irrigation service contracts. The table below shows the average actual cost by activity for the 2007-10 period and compares these to the forecast cost for the 2012-16 period.

Table 1 – Comparison of Forecast and Actual Costs

$'000 2011	2007-10 Average Actual	2012-16 Average Forecast
Operations	$23,805	$24,600
Preventative maintenance	$9,863	$11,549
Corrective maintenance	$8,980	$7,076
Total	**$42,648**	**$43,225**
	change	+1.4%

Looking at the figures in Table 1, the consultants may incorrectly assume that SunWater's costs have increased due to 'inefficiencies'. In particular, Aurecon

identified cost differences between forecast and average actuals at the activity level as clear evidence of inefficiencies.

However, when the effect of labour escalation is removed from the total figures the forecast is actually shown to be below the actuals on a like-for-like basis i.e. the apparent increase is due to labour costs increasing at greater than CPI rather than the emergence of inefficiencies, as shown below.

Table 2 – Comparison of Costs after Labour Escalation Effect Removed

$'000 2011	2007-10 Average Actual	2012-16 Average Forecast
Operations	$23,985	$24,265
Preventative maintenance	$9,956	$11,367
Corrective maintenance	$9,058	$6,968
Total	**$42,999**	**$42,600**
	change	-0.9%

In effect, SunWater's operations have been shown to be more efficient for those items within its control. If contractors, materials and plant escalation[2] were also considered, this efficiency would be shown to be greater than the 1% identified in Table 2. This improvement in efficiency reflects the gains made through SunWater's Smarter Lighter Faster Initiative (SLFI). Any 'efficiencies' identified without taking into account the cost escalation effect have not be proved to be true inefficiencies.

Forecasts costs also show the combined effect of the impact of cost escalations and the expected differences between future operating conditions compared to average past operating conditions. Again, any 'efficiencies' identified without taking into account the expected differences in operating conditions have not be proved to be true inefficiencies.

When forecast costs are assessed at the activity level for each service contract there will be further variation due to the specific forecast conditions particular to each service contract. Again, this variation is not evidence of inefficiency. The consultants effectively employed 'cherry-picking' of these supposed inefficiencies at the activity level without appropriate consideration of the forecast variability across all service contracts due to expected differences in operating conditions. In these cases the consultants have mistakenly taken the observed effects of the chosen forecast methodology at the lowest levels to be evidence of inefficiencies. It is a case of the consultants not being able to see the 'forest for the trees'. If the particular expense forecast is considered to be too high then this is a criticism of the forecasting

[2] Contractors, materials and plant are escalated at 4% in the SunWater Financial Model.

methodology rather than an identification of inefficiency within the activity and could be corrected with a re-balancing of costs between activities. This point is explained further in the description of the forecasting methodology in the 'Operating Cost Forecast submission' made by SunWater to the QCA[3].

The issues raised above are further exacerbated whenever the consultant's chose to examine costs at a sub-activity level. As discussed earlier, SunWater did not forecast costs at the sub-activity level. When the consultant's derived sub-activity forecasts from additional information provided by SunWater they are extending the forecasts beyond their scope and introducing further errors into their analysis. Any 'inefficiencies' identified through this approach are therefore problematic. This sub-activity analysis issue particularly impacted on Aurecon's and Halcrow's analysis of preventative maintenance costs. This point is discussed in greater detail in Attachment 2 of this paper.

[3] SunWater submission to the QCA, "Response to issues – operating cost forecasts", September 2011.

3 SunWater's response to specific issues

Table 3 – SunWater's response to specific issues

Consultant	Scheme	Issue raised	SunWater response
Halcrow	ALL	Cost escalation – Halcrow did not agree with SunWater's proposed inflation of materials and contractors above inflation (at 4%), and instead recommended 2.5%.	See Attachment 1.
	ALL	Benchmarking – Halcrow has compared Theodore to other gravity distribution systems.	Theodore is not a gravity system, nor are most of the other SunWater systems included in 12.3.1 and 12.3.4. Furthermore, this benchmarking does not take account the age of the assets and the impacts on operations costs (Theodore assets are the oldest of all SunWater's distribution systems).
	ALL	Benchmarking – O&M costs by long-term supply	This metric assumes a cost relationship between 'long term supply expectation' and O&M costs. This is likely reflecting factors of scale or yield efficiency (which are a function of past infrastructure decisions), rather than controllable factors of operating cost.
	ALL	Operating expenditure and water usage	SunWater does not accept there is evidence to suggest that operating costs (apart from variable electricity costs) vary proportional to water use. We note Halcrow's findings are of a general nature only.

Consultant	Scheme	Issue raised	SunWater response
	ALL	Corrective maintenance has not been optimised to take account of the changes to preventative maintenance	The PB review focussed on costing the preventative maintenance program as it exists. The PB review did not result in major changes to the historic preventative maintenance program. Where the PB review resulted in changes to preventative maintenance costs from the past, this was due to more accurate and updated costing, rather than a change to the preventative maintenance program itself. In some cases, additional condition monitoring is carried out (e.g. on storages after floods / pumping equipment if minor faults occur during the peak season). In some cases, an additional allowance was included as this condition monitoring was not in the scope of the work instructions reviewed by PB. SunWater is progressively introducing condition-based maintenance rather than the previous time-based maintenance approach. The RCM process has started but will take some time to implement due to the number of assets involves. It would not be prudent to reduce the corrective maintenance costs at this time. Any reductions to corrective maintenance as a result of this shift will also take some time to materialise, and any savings will be difficult to predict.

Consultant	Scheme	Issue raised	SunWater response
	Nogoa Mackenzie	Increase in operating costs was attributed to increased water levels in the scheme's dams and weirs.	The increase in operations cost in Table 4-3 is due to the incident at Bedford Weir re the deflation of the fabridam. Also refer to comment concerning p57.
		Halcrow noted reduction of 6 staff at Emerald	SunWater previously advised that the reduction was for 3 staff.
		SunWater has not been able to justify $5k of the preventative maintenance program.	See Attachment 2
		Fabridam post deflation incident costs (p71)	Refer to SunWater's subsequent paper on this issue, provided to the QCA.
	Emerald distribution	Total channel control preventative maintenance costs ($13,332) should not be recovered from irrigators	The maintenance costs relate to TCC infrastructure that is already installed. SunWater's comment noted in the Halcrow Report was that no additional TCC infrastructure would be installed. However, NSP forecasts do and are intended to recover operating and maintenance for TCC assets that exist.
		Justification of $38,400 on PM for "additional calibration, servicing" and other costs not included in the PB report.	See Attachment 2.
		Electricity costs for Selma pumping – Halcrow found SunWater's assumption did not take account of the current level of Fairbairn Dam. Halcrow assumed no pumping in 2012, 2013 and 2014, and $95k in cost of pumping in 2015 and 2016.	Refer to SunWater's submission on electricity costs. Halcrow failed to recognise Selma relift pumps that operate regardless of storage elevation and misunderstand the methodology applied by SunWater when forecasting electricity costs for Emerald distribution.

Consultant	Scheme	Issue raised	SunWater response
		Acrolein cost forecasts do not incorporate 15% reported price reduction in SunWater's *background paper*	It is important to note that the 15% reduction referred to in the letter sighted by Halcrow related to supplies in the US, and not Australia The NSP forecasts were based on the actual price for Acrolein at the time, of $6,114 per drum. The current price has not fallen to the extent indicated by the supplier, but has reduced slightly to $5,721 per drum. This has occurred since NSP data was developed.
	Lower Fitzroy	SunWater unable to account for $2k in preventative maintenance, and Halcrow recommended this be removed.	See Attachment 2
		Preventative maintenance of some $3k was included for Stanwell Pipeline. This was removed by Halcrow	SunWater has reviewed the work instructions and costs, and has found some $9,104 that relates to the Stanwell Pipeline (more than the $3,100 found by PB), and accepts that this should be removed from the NSP costs for Lower Fitzroy.
	Dawson Valley	SunWater was not able to account for $3k in preventative maintenance	See Attachment 2
		Halcrow adopted a longer period to average electricity costs for Moura Offstream Storage, reducing the allowance by $8k	Refer to SunWater's submission on electricity costs.
	Theodore	Preventative maintenance costs that couldn't be accounted for were $112k, however some $60k appears to be for weed control	See Attachment 2

Consultant	Scheme	Issue raised	SunWater response
		(labour).	
		Acrolein allowance was excessive ($2k), based on expectation that prices will fall by 15% - this was not included in the NSP forecasts	It is important to note that the 15% reduction referred to in the letter sighted by Halcrow related to supplies in the US, and not Australia The NSP forecasts were based on the actual price for Acrolein at the time, of $6114 per drum. The current price has not fallen to the extent indicated by the supplier, but has reduced slightly to $5721 per drum. This has occurred since NSP data was developed.
	Callide	Preventative maintenance costs that couldn't be accounted for were $43k, however some $29k appears to be for weed control (labour).	See Attachment 2
		Renewals of town water supply local isolator may be avoided depending on SunWater negotiations with Council to hand over the facilities.	SunWater agrees, and if this transpires then it will be reflected in actual renewals expenditure applied to the ARR.
	Three Moon Creek	Could not account for $6600 in preventative maintenance costs.	See Attachment 2
Aurecon	Selected schemes	Aurecon did not accept PB estimates of hours of work required, and suggested that until an audit occurred of historic data. Instead, Aurecon recommended that the average historic labour effort should be used	Past data is not a reliable indicator of actual costs or work. For example, some past preventative maintenance at storages was booked to operations, rather than preventative maintenance.

Consultant	Scheme	Issue raised	SunWater response
		along with any additional items identified in the PB review	The PB review identified the labour effort and materials – contractor costs for each maintenance item from first principles. This was a thorough and detailed review undertaken by an independent party, is forward looking and and is the best source of reliable information for the forecasts.
	ALL	Aurecon suggested there were discrepancies between historic labour rates (as calculated by Aurecon from PB data) in 2010, and the PB rates used. Aurecon noted that this may be due to assumption that higher level staff were employed for the maintenance work.	The preventive maintenance costs for 2011 were based on information received from field staff through consultation. Each job was costed by identifying the different staff required to complete the work; there was no single rate used. So, depending on the level of employee, different rates were used, e.g. 4 hrs-SW04, 4 hrs-SW05, 4hrs-SW08.
	ALL	Aurecon recommended that labour costs for weed control were set based on historic data, noting that there were discrepancies between this data and the amount calculated by subtracting labour for condition monitoring and servicing from the total preventative maintenance forecast.	Refer to Attachment 2
	Boyne River & Tarong	Corrective maintenance –Aurecon questioned why the 4-year average for direct	The forecast for corrective maintenance was made based on the expected operating conditions for the Boyne scheme over

Consultant	Scheme	Issue raised	SunWater response
		expenditure was not adopted, noting this was 33% or $3000 less than SunWater's forecast	2012-16, it was not a simple average of actual costs over 2007-10. Aurecon's Table 6-7 shows that corrective maintenance as a percentage of operating costs is forecast to be 6.7% compared to the 2007-10 average of 6.1%. Aurecon did not consider the impact of above-CPI cost escalations in their analysis.
	Lower Mary Water Supply Scheme	Aurecon questioned why corrective maintenance was $2,800 higher than the four year average	The forecast for corrective maintenance was made based on the expected operating conditions for the Lower Mary Water Supply scheme over 2012-16, it was not a simple average of actual costs over 2007-10. Aurecon's Table 7-6 shows that corrective maintenance as a percentage of operating costs is forecast to be 4.6% compared to the 2007-10 average of 5.4%. Aurecon did not consider the impact of above-CPI cost escalations in their analysis.
	Lower Mary Distribution	Aurecon questioned why corrective maintenance was $9,000 [$11,000?] higher than the four year average.	The forecast for corrective maintenance was made based on the expected operating conditions for Lower Mary Distribution over 2012-16, it was not a simple average of actual costs over 2007-10. Aurecon's Table 8-7 shows that corrective maintenance as a percentage of operating costs is forecast to be 19.6% compared to the 2007-10 average of 24.5%. Aurecon did not consider the impact of above-CPI cost escalations in their analysis.
	Bundaberg	Questioned why a higher labour cost was	Aurecon incorrectly assumed that forecast preventative

Consultant	Scheme	Issue raised	SunWater response
	Distribution	adopted over and above the PB recommendation for preventative maintenance.	maintenance costs were a simple extrapolation of 2010 actual costs and then preceded to disaggregate costs at a sub-activity level using partial information from the Parsons Brinkerhoff report. The forecast for corrective maintenance was made based on the expected operating conditions for Bundaberg Distribution over 2012-16, which was made at the activity level. These costs can not be disaggregated to the sub-activity level (see Attachment 2).
GHD	Chinchilla Weir	Efficiency gains could be achieved through electronic water ordering through IVR or through SunWater-on-line, however GHD did not recommend any adjustments.	The costs of implementing these systems are significant as they must be set up and tailored to each water supply scheme. SunWater does not believe the costs, given the small customer base, would be justified. GHD have not provided any supporting data about the cost savings that would arise from implementing these systems to support their findings. Regardless, SunWater notes that GHD did not recommend any adjustment to costs.
	Cunnamulla Weir	Efficiency gains could be achieved through electronic water ordering through IVR or through SunWater-on-line, however GHD did not recommend any adjustments.	The costs of implementing these systems are significant as they must be set up and tailored to each water supply scheme. SunWater does not believe the costs, given the small customer base, would be justified. GHD have not provided any supporting data about the cost savings that would arise from implementing these systems to support their findings.

Consultant	Scheme	Issue raised	SunWater response
			Regardless, SunWater notes that GHD did not recommend any adjustment to costs.
	Macintyre Brook	GHD argued that efficiency gains could be achieved through having customers read meters monthly and enter readings on SunWater online, and the time gained could be used to complete preventative maintenance activities.	Refer Attachment 3.
	St George bulk water & distribution	GHD argued that efficiency gains could be achieved through having customers read meters monthly and enter readings on SunWater online, and the time gained could be used to complete preventative maintenance activities.	Refer Attachment 3
	Upper Condamine	GHD found that an automated system for water orders, and reduction to the number of products available should be considered. GHD recommended that an ordering system for commonly used products should be offered to reduce the amount of manual handing of customer orders.	The GHD recommendations are not practical to implement. The water products offered are not at SunWater's discretion, but are instead set by DERM. Any rationalisation would be at the customer's discretion, if it were allowed for in the ROP. It is not practical to establish a system for only some products, and not others, as manual processing will still be required regardless. Indeed, SunWater would have to operate under two separate systems (automated and manual) for managing water ordering, increasing complexity and scope for error.

4 Conclusion

SunWater has reviewed the specific recommendations for opex adjustments made by the QCA's engineering consultants. SunWater does not accept the majority of their recommended adjustments for the reasons outlined in the table above and also in the supporting information presented in this paper.

Attachment 1. Indexation of materials and contractor costs

The purpose of this attachment is to respond to statements made by the four consultants[4] engaged by the Queensland Competition Authority (QCA) in relation to SunWater's proposed escalator of 4% per annum for its materials and contractor costs.

Two of the consultants – Arup and Aurecon – agreed with SunWater's proposed escalator. In addition to stating that a factor of 4% was appropriate and that the use of the CPI would underestimate the level of activity and demand, Arup noted that:[5]

> *…the use of Macromonitor's work represents the most up to date and appropriate assessment of the sector and we believe that SunWater's 4% escalation factor is appropriate given the trends predicted in this report.*

SunWater's escalation factor was also considered appropriate by Aurecon:[6]

> *…Aurecon views the use of an escalation rate of 4% (nominal terms) over the 2011 to 2016 period, as most representative of the likely future price movements for both materials, and contractors.*

Aurecon also supported SunWater's argument that non-residential construction within Queensland will experience strong growth in the short to medium term:[7]

> *Based on recent assessments undertaken by Aurecon and the private and public sectors involved in mining projects and infrastructure, Aurecon supports SunWater's assertion that non-residential construction within Queensland will grow strongly in the short to medium term.*

While Arup and Aurecon both exhibited strong support for SunWater's proposed escalator for materials and contractor costs, Halcrow and GHD did not consider a factor of 4% to be appropriate.

Halcrow proposed that a factor of 2.5% be adopted, stating that this was based on a more forward-looking approach to the escalation of SunWater's operations, maintenance and chemicals costs. In reaching this conclusion, Halcrow noted that while historically the indices for the value of non-residential work approved but not yet commenced and the value of non-residential work in the pipeline have been

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4 The four consultants engaged by the QCA are Arup, Halcrow, GHD, and Aurecon.

5 P 22.

6 P 49.

7 P 48.

increasing, these indices have been experiencing a downward trend over the past two years.

This recent downward trend was noted by SunWater in its background paper, however based on industry forecasts it was concluded that these indices will resume an increasing trend from 2011 onwards, particularly in Queensland and Western Australia.[8] This was supported by Arup, who noted that the forecasts referenced by SunWater were representative of the most up to date and appropriate assessment of the sector. Furthermore, Aurecon's assessment also agreed with SunWater's conclusion regarding forward-looking construction costs (see above quotes from pages 48 and 49 of Aurecon's report).

Halcrow also states that non-residential construction would typically involve unrelated activities to SunWater's normal operations. This is not consistent with the views of the other consultants, most specifically those expressed by Aurecon:[9]

> *SunWater examine in detail non-residential construction activity which conforms most closely to services and products linked to SunWater's activities.*

This is also not consistent with Halcrow's statement that it agrees with SunWater's observed correlation between the non-residential construction cost index and the value of non-residential work in the pipeline index.

As noted above, Halcrow stated that its proposed escalation factor of 2.5% was based on a more forward looking approach. It is noted that Halcrow's assessment of SunWater's proposed escalation factor of 4% is based solely on short-term trends in historical indices and does not appear to have had any regard for the information presented in SunWater's background paper with regards to forecasts of non-residential construction activity. Halcrow's alternative escalation factor is therefore not considered to be based on a forward-looking approach. Furthermore, Halcrow's alternative of 2.5% is not underpinned by any evidence or rationale, as acknowledged by Halcrow:[10]

> *…it is difficult to conclude that an escalation factor of greater than the normally accepted 2.5 percent should be applied.*

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8 See pages 6 and 7 of SunWater's January 2011 Background paper titled 'Cost forecasting assumptions'.

9 P 48.

10 P 44.

GHD also did not consider 4% to be an appropriate escalation factor for SunWater's materials and contractor costs. In reaching this conclusion, GHD stated that it:[11]

> *…is unable to see the rationale for the development of the 4% escalation and is therefore not able to validate why this is a conservative escalation.…*
>
> *A number of indices are provided as evidence for the selection of the cost drivers, however the arguments for the application of these drivers are not well defined.*

It is important to note that two of the other three consultants considered SunWater's proposed escalation factor of 4%, and the supporting evidence underpinning it, to be appropriate. Aurecon also noted the relevance of the non-residential construction indices used by SunWater in developing its escalation factor.[12] Furthermore, while not agreeing with SunWater's proposed escalation factor, Halcrow did not consider that SunWater had failed to properly define or substantiate its argument.

GHD also stated that the QCA has not accepted that escalations of individual costs are valid in any past consideration. This led GHD to conclude that:[13]

> *On the basis of previous rulings, GHD would recommend escalations for all operational expenditure (except electricity) proposed by SunWater to be set to CPI…*

GHD's contention that the QCA has not previously accepted the validity of escalation factors for specific costs is not accurate. As noted in Attachment 1 to SunWater's January 2011 background paper titled 'Cost forecasting assumptions', the QCA previously accepted QR Network's proposal to index its maintenance costs by a specially constructed index on the basis that it better reflected input price changes in central Queensland relative to the CPI. In accepting this approach, the QCA noted that:[14]

> *The Authority does not believe that the proposal to escalate costs by an index other than CPI is extraordinary.*

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11 P 25.

12 See the quote from page 48 of the Aurecon report on the previous page.

13 P 25.

14 Queensland Competition Authority (2010). Draft Decision: QR Network 2009 Draft Access Undertaking, p 183.

In closing, SunWater submits that the QCA accepts its proposed indexation for materials and contractor costs at 4%, consistent with two of the consultants' recommendations and on the basis that the findings of the other two (GHD and Halcrow) were not based on forward looking assessments of costs.

Attachment 2. Preventative maintenance comments – Halcrow and Aurecon

The purpose of this attachment is to respond to the findings of Halcrow and Aurecon in relation to preventative maintenance, where they were not able to reconcile the expenditure forecasts for preventative maintenance activity to the sub activity components, namely condition monitoring, servicing and weed control.

It is important to establish that SunWater's forecasts are made at the activity level, namely:

- Operations;
- Preventative maintenance; and
- Corrective maintenance.

In making these forecasts, SunWater must determine how to assign its labour costs between these various activities. These labour costs are by and large derived from the existing direct workforce, their rates of pay, and forecast indexation over the regulatory period.

This workforce often comprises one or a few employees performing tasks across a range of activities within each scheme. Table 1 provides an example for the South region.

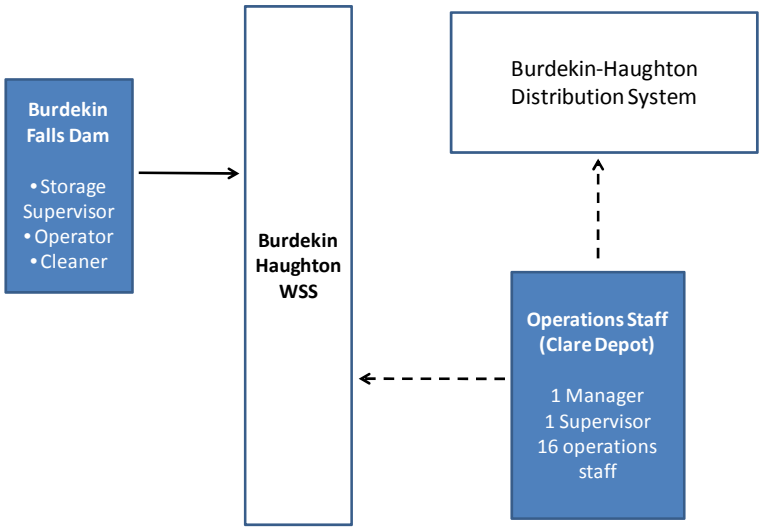
Table 4 – Direct employees in South Region, scope of activities or sub activities

Water Supply Scheme or Distribution System	Direct employees	Range of activities/ sub activities
Macintyre Brook WSS	1 Storage Supervisor 1 Operator	Operations Corrective maintenance Preventative maintenance
Upper Condamine WSS	1 Storage Supervisor	Operations Corrective maintenance Preventative maintenance
Maranoa Weir WSS	No direct employees. Serviced from Toowoomba-based operations staff	Operations Corrective maintenance Preventative maintenance
Chinchilla Weir WSS	No direct employees. Serviced from Toowoomba-based operations staff	Operations Corrective maintenance Preventative maintenance
St George WSS	1 Storage Supervisor	Operations

Water Supply Scheme or Distribution System	Direct employees	Range of activities/ sub activities
	2 Operators	Corrective maintenance Preventative maintenance
St George Distribution System	1 maintenance supervisor	Corrective maintenance Preventative maintenance
	5 operations employees	Operations Corrective maintenance Preventative maintenance

In other cases, there are many employees who work in various activities within multiple supply schemes or across bulk water schemes and distribution systems. Figure 1 presents an example in the Burdekin-Haughton.

Figure 1. Sourcing of labour resources for the Burdekin-Haughton



In reviewing SunWater's preventative maintenance activity costs, Aurecon and Halcrow have tried to evaluate the costs by sub activity. This has occurred because there is information about two of the three preventative maintenance sub-activities cost, condition monitoring and servicing, which were recently reviewed and quantified by Parsons Brinkerhoff (PB). The consultants have taken the PB costs and concluded that the residual relates to weed control. For example, if labour costs for preventative maintenance at the activity level were $50,000 (as per the NSPs), and the PB estimate for servicing and condition monitoring was $30,000 (provided separately to the consultants) then it has been assumed that the residual of $20,000 relates to

labour for weed control, or preventative maintenance costs in addition to the PB report (e.g. additional condition monitoring).

The consultants then looked to understand the basis of this residual (i.e. the $20,000) and evaluate whether it was prudent and efficient. In some cases, the consultants compared the residual to past labour costs for weed control, and used historic figures as proxy for weed control labour costs to recommend adjustments to the preventative maintenance activity costs.

It is understandable that these consultants would follow this logic given the information provided, and their frustration about the lack of data to support this residual is apparent.

However, it is important to recognise that SunWater's expenditure forecasts, particularly labour costs, are not intended to be viewed at the sub activity level, and indeed examining labour costs even at the activity level should be done with some caution. This is because labour is shared between activities and schemes, and any examination of the costs will tend to be more about the assumptions about how the existing workforce will spend its time, rather than an overall assessment of efficiency.

This is not to say that the PB costs for servicing and condition monitoring have not been accepted or adopted by SunWater, as this is the case. However, it is important to note that the PB review and costings have not resulted in changes to the overall direct labour employed by SunWater. Rather, the PB review has defined what part of that labour cost can be expected to be dedicated to servicing and condition monitoring in the future.

SunWater accepts that discrepancies exist when comparing the 'residual' labour costs for weed control against historic costs for weed control. However, examining costs at the sub activity level, is not recommended given:

- Historic costs are heavily dependent on how employees have recorded their time, and there scope for error in these entries; and
- Forecasts were developed at the activity, not sub-activity level. Attempts to recreate a labour or other cost at the sub activity level will be fraught and misleading.

SunWater suggests that a better approach, which more closely aligns with its workforce arrangements, is to examine the labour costs for each scheme or distribution system at the scheme or distribution system level, and assess whether the total labour dedicated to that scheme / system is efficient for a given level of workload (e.g. whether it is efficient to have one storage operator and an operator at the Macintyre Brook WSS, as indicated in Table 1). This workload can be specified through, for example, individual work instructions for various activities, the PB report for preventative maintenance, and an understanding of the tasks involved in operations generally.

SunWater does not agree with the recommendations made in relation to preventative maintenance costs as they are made on the basis of examining labour costs at the sub-activity level.

For example if a consultant finds that labour for a particular sub-activity is high (e.g. weed control), it would follow that the direct workforce dedicated to that scheme should reduce or be redeployed to another activity. However, when examining the workload in aggregate across all activities, it is likely that a different conclusion would be reached about the labour costs for the entire scheme. That is, judgements about reducing labour costs must eventually come down to an assessment of the number of employees and the cost of their labour for a given level of activity (or alternatively if the use of contractors would be more efficient). The approach taken by the consultants does not examine SunWater's costs in this way.

Attachment 3. Customer meter reading

This paper sets out the requirements to read water meters and discusses the advantages and disadvantages of customers reading their water meters.

ROP Requirement to read water meters

Resource Operations Plans (ROPs) require the Resource Operations Licence holder (i.e. SunWater) to meter the taking of water under water allocations (e.g. s14 of the Condamine & Balonne ROP). The meter reads must be reported quarterly to the Department of Environment & Resource Management e.g. s336 of Condamine & Balonne ROP.

Note SunWater is also required to report the volume of water entitled to be taken e.g. s336 (2) (c) (ii).

This 'water entitled to be taken' is the water which has been made available under the announced allocation process, and adjusted for carryover, seasonal water assignments (temporary transfers), etc.

Supplying data both on metered take and 'water entitled to be taken' gives the regulator the ability to check if people have overused their available water throughout the water year. Therefore supplying DERM with one end-of-year meter read would not be compliant.

Given the extent of temporary trading in water supply schemes, reliable meter data is essential for two reasons:

1. To ensure individual customers to not breach water use limits, and
2. To ensure that SunWater complies with maximum take provisions which in some ROPs are set by river reach.

For these reasons any meter known to be installed will be included in the meter rounds. Assumptions that “sleepers” had record zero water use is not acceptable given the temporary transferring arrangements as “sleepers” trade water.

SunWater is required to review announced allocation in each scheme promptly after inflows are received to storages. In these circumstances reliable water usage data is required, otherwise customers are can be denied access to water and/or SunWater can be in breach of licence conditions.

Problems with Customers reading their own water meters

The issues associated with customers reading their own water meters include:

- There will always be a considerable number of customers who fail to read their water meters and notify SunWater of the meter reading in a timely manner, if at all. Where meter readings are not provided there will be a considerable administrative cost in contacting the customer or making alternative arrangements to get the meter reading;

- Mistakes can be made by the customer in reading the meter and providing the meter reading to SunWater. SunWater bears the risks of these mistakes if the meter reading is used for ROP reporting and relied upon for ROP compliance;
- Customers do not always provide the correct information to SunWater e.g. name, meter offtake number and meter reading, requiring SunWater to follow up with the customer;
- Customers have incentives to read the water meters to their advantage e.g. to maximise volumes to be carried over at the end of the water years or during water harvesting events, customers have incentives to 'under-read' the meter at the start of the event and 'over-read' the meter at the end;
- Increase in administration costs associated with contacting customers when meter readings have not been given or where the incorrect information has been given to SunWater;

Advantages of SunWater reading water meters

The advantages of SunWater reading the water meters include:

- Meter reading carried out in a timely manner;
- Less probability of meter reading mistakes;
- SunWater staff check to ensure the water meter is working;
- Accurate meter reading data is required for announced allocation determinations;
- Accurate water use data is essential for the correct approvals of temporary transfers and customers water balances;
- SunWater staff monitor the distribution network for faults and damage to infrastructure while meter reading;
- Revenue accuracy is improved when SunWater reads the water meters due to fewer incorrect meter reads, meters read on time, broken meters identified and adjustments agreed, theft of water discouraged, etc.