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Annual Network Service Plan

Burdekin Bulk Supply

April 2013

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Notes

All financial figures in this report are presented in nominal dollars.

Most of the financial figures in the QCA's final report on SunWater's irrigation pricing were presented in real dollars (\$2011). To convert to nominal dollars multiply by the following factors, which are based on the QCA's assumed inflation rate of 2.5% p.a.

Table 1 – Conversion Factors for Nominal-to-Real Dollars

Year	2013	2014	2015	2016	2017
Conversion Factor	0.952	0.929	0.906	0.884	0.862

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Introduction

A recommendation from the 2013-17 review of SunWater's irrigation pricing was for SunWater to produce annual Network Service Plans (NSPs) to help keep customers informed throughout the pricing period. These annual NSPs will focus on both operating expenditure (opex) and renewals and enhancements (R&E) expenditure. In particular, the NSPs will cover:

- current year performance for opex and R&E,
- forecast opex and R&E for the approaching year, and
- the long-term outlook for material R&E spend.

This is the first annual NSP that SunWater has produced. Given that it is being published in the first year of the new price path, and the 2013 year is incomplete, there is no actuals data reported in the performance tables. Also, very few options analyses have been completed to date as the annual planning for renewals and enhancements discussed in this NSP was completed just prior to publishing.

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Email: nspfeedback@sunwater.com.au

Post: NSP Feedback
PO Box 15536 City East
Brisbane Qld 4002

Past¹ and Forecast Performance

The tables in the following sections show the QCA targets with planned water use and spend for the current year and future years. Budgets for future years are based on the current draft budget at the time of consultation and are therefore subject to change.

Water Usage

Table 2 - Water Usage

	WAE	2013 QCA Forecast (ML)	2014 QCA Forecast (ML)
Total	425,271	342,768	342,768

¹ As this is the first year of the 5-year price period, this NSP has the current year and following year figures only; future NSPs will also report on the past year performance against target and budget.

Table 3 – Operating Expenditure

	2013		2014	
	QCA Target (\$'000)	SunWater Budget (\$'000)	QCA Target (\$'000)	SW Draft Budget ² (\$'000)
Operations	2,579	2,668	2,685	2,617
Preventive Maintenance	357	360	373	346
Corrective Maintenance	223	231	232	217
Electricity	96	103	102	110
Total	3,255	3,362	3,392	3,290

Operations

The operations budget in 2014 is below the QCA's target.

Preventive Maintenance

Preventive maintenance is budgeted in line with the QCA's target for 2014.

Corrective Maintenance

Corrective maintenance is budgeted in line with the QCA's target for 2014.

Electricity

Electricity costs are budgeted higher than the QCA target in 2014 due to announced increases in electricity prices being much higher than the 12.5% and 7% increases allowed by the QCA in 2013 and 2014. This cost over-run is beyond SunWater's control and is likely to trigger a within-period cost pass-through application to the QCA.

² SunWater draft budget figures as at the time of consultation. Budget figures for the following financial year are not locked down until late in the financial year prior.

Renewals and Enhancements

R&E annuity expenditure is forecast to be \$397k above target for 2014. However, over the full 5-year price period the estimated expenditure is under the QCA target.

Table 4 – R&E Expenditure (excl. dam safety & other)

2013		2014		5 year price period (2013-17)	
QCA Target (\$'000)	SunWater Budget (\$'000)	QCA Target (\$'000)	SW Draft Budget (\$'000)	QCA Target (\$'000)	SunWater Estimate ³ (\$'000)
421	445	234	627	2,558	2,339

The renewals annuity income has been set by the QCA until the end of the current price path in 2017. SunWater will aim to limit the R&E expenditure to the QCA's targets over the current price path in order to manage the annuity balance to reasonable levels. The impact of the draft budget R&E spend on the annuity balance for 2014 is shown in the following table.

Table 5 – Annuity Balance 2014

2014 Annuity Income (\$'000)	2014 Draft Budget Annuity Spend (\$'000)	Estimated Impact on Annuity Balance (\$'000)
558	(627)	(69)

³ Actual figures will replace budget figures in the forecast as each year of the price period is completed. R&E forecasts and estimates are subject to change as planning is refined throughout the price period.

The details for the major projects planned for 2014 are provided below:

Table 6 – R&E Projects 2014

Project Title	Project Scope	2014 Draft Budget (\$'000)
Replace PLC - CLARE WEIR	The Upgrade of PLCs will involve replacement of all PLC hardware to the current SunWater Standard compliant M340 PLCs and the conversion of Concept OR Modsoft Lite programs to IEC 61131-3 compliant Unity Pro Software. UnityPro has been SunWater's standard process PLC programming software for approximately three years and is fully licensed and supported by Schneider Electric Australia.	129
Refurbish hydraulic cylinders 1 - 30 - CLARE WEIR	The hydraulic cylinder refurbishment involves inspecting and replacing hydraulic seals that have failed or have been assessed to fail prior to the next scheduled refurbishment, changing out of the hydraulic oil if required, inspecting and refurbishing or replacing failed or damaged cylinders, checking and refurbishing or replacing hydraulic lines, pump units, non-return valves and the cylinder shafts.	60
Refurbish Hydraulics System (excluding rams) - Assess, Scope, Design, Procure - CLARE WEIR	The hydraulic system needs to be assessed, scoped and designed before refurbishment of hydraulic system and should be compatible with proposed PLC upgrade.	50
Divers to be used to rectify bulkhead gate jammed when was used to	During 2012 dam safety inspection, the bulkhead gate	31

close outlet gate 2. see 2012 five year inspection 6.3.2.1 - BURDEKIN FALLS DAM	was not able to be installed in gate number 2 outlet. It has been proposed to use divers to determine if debris is interfering with the installation of the bulkhead gate.	
Other minor works		357
Total		627

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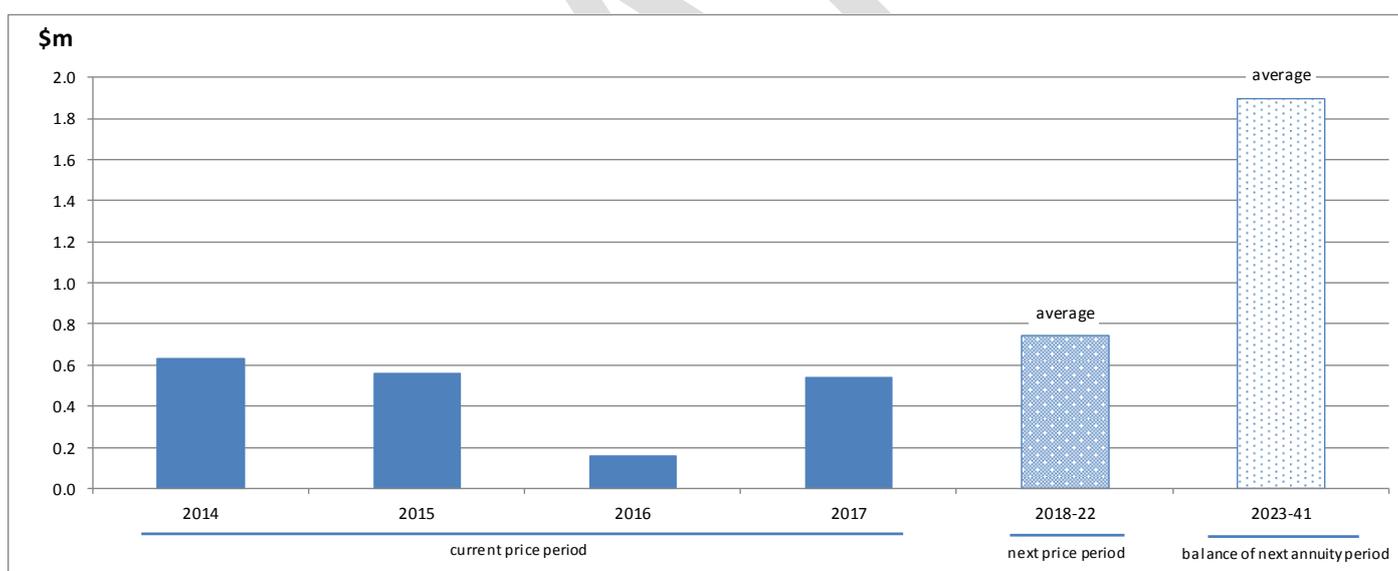
Overview of Renewals and Enhancements 2014-41

SW has developed a whole of life strategy around the replacement and maintenance of its asset portfolio which is based on the concept of optimised life. The key drivers in this approach are the risk and condition of each asset. The current condition of an asset drives an estimate of the future work required to ensure an asset continues to be able to provide the required level of service into the future. SunWater maintains a program of asset inspections and condition assessments which continually updates our knowledge of asset condition. This information feeds into the annual review of the R&E program, the most recent of which was completed in February 2013. Items requiring immediate maintenance or replacement will be included in the budget for the following year, which was covered in the previous section.

While the immediate program for the next year's budget is well defined; the further into the planning timeline, the more uncertain the estimates become. Consequently, the program of works is not a specific forecast of when individual projects are expected to be executed but rather it is portfolio level estimate of works based on the best-available risk and condition information for the service contract as a whole. This information feeds into calculation of the annuity to fund R&E. Having an annuity funding arrangement acknowledges that a long-term view of R&E spend is required to ensure adequate funding and to address issues such as inter-generational equity.

The annuity that is calculated over a 20-year planning period; given that the next pricing period ends in 2022, the estimated R&E spend out until 2041 will affect the next pricing review. The estimated R&E expenditure out to 2041 is shown in the chart following.

Figure 1 –R&E Annuity Expenditure 2014-41



All material R&E items out until 2041 are discussed in the sections following. Materiality is defined as >10% of the present value of the period in question. SunWater will develop options analyses for all material items in the annuity calculation planning period. These reports will be tailored to suit project complexity and budget, with more detailed options analyses being completed for the 5-year pricing periods than for the 20-year period beyond the next price path. The materiality tests will be applied each year as part of annual planning process. Given that there will be project churn, some items will no longer require options analysis in future years and new items may join the list.

Material Projects 2014-17

Refurbish hydraulic cylinders - Clare Weir

Year: 2014-18

Current estimate: \$747k

Options analysis completed: No

The program to refurbish the cylinders has been sequenced on an annual basis during the annual shut down period since 2003. An 'as needs' approach has been used, meaning that some cylinders have never been refurbished and are now showing signs of needing work to be done.

The hydraulic cylinder refurbishment involves inspecting and replacing hydraulic seals that have failed or have been assessed to fail prior to the next scheduled refurbishment, changing out of the hydraulic oil if required, inspecting and refurbishing or replacing failed or damaged cylinders, checking and refurbishing or replacing hydraulic lines, pump units, non-return valves and the cylinder shafts.

The compelling need to undertake the work was/is to ensure ongoing operation of the weir gates. They are approaching 30 years old. Some cylinders have been refurbished on an 'as needs' basis since 2003 but there has not been a consolidated refurbishment plan developed for them. They are now on a 10 year refurbishment period (SunWater's standard refurbishment period for this type of asset), commencing in 2014 with 30 cylinders to be refurbished each year.

Material Projects 2018-22

Projects in the R&E plan for 2018-22 should be viewed as indicative at this stage and will be refined as the next pricing review draws closer.

Upgrade Outlet Works Construct and Commission Stg 2 (ROP) - Val Bird Weir

Year: 2018

Current estimate: \$791k

Options analysis completed: Yes

In order to satisfy the requirements under Section 88.3 of the Burdekin Basin ROP, the Giru and Val Bird weirs would have to be able to provide 40 ML/d of passing flow at their Minimum Operating Level. Secondly, to supply the irrigators, the Val Bird Weir would have to provide at least 100 ML/d of passing flow at its Nominal Operating Level. As these upgrades must be completed before the August 2, 2014 expiry of the ROP grace period, it was recommended that the detailed design of these be progressed, with a view to constructing the required upgrades in the 2013/14 Financial Year. To ensure the pipe would operate under full flow conditions (thus providing the flow meter with the best conditions for measuring) the pipe would use an inlet box and bubbler arrangement. The Siemens MAGFLO 3100 flow meter that was considered in the preliminary design requires a straight pipe length of five times the pipe diameter upstream and three diameters downstream to ensure laminar flow conditions for measuring, thus partially determining the dimensions and arrangement of the flow meter and regulating gate.

Two options were available to provide water flow through the weirs – a cut channel regulated by a gate, or a pipe outlet. The channel option was initially considered, but was discarded as the level to which it would be feasible to cut, would not allow sufficient flow at the Minimum Operating Level for either weir. Additionally, cutting a channel through the weir would introduce a weak point, possibly compromising the structural integrity of the weirs.

The pipe outlet option would not introduce a weak point into the weir's structure, and could be set lower in the weir than a channel could. Also, control mechanisms, such as flow meters and regulating gates, could be easily attached. As such, the pipe outlet became the preferred option.

Install Functional Outlet Works for End of System Flow Stg 2 (ROP) - Giru Weir

Year: 2018

Current estimate: \$594k

Options analysis completed: Yes

In order to satisfy the requirements under Section 88.3 of the Burdekin Basin ROP, the Giru and Val Bird weirs would have to be able to provide 40 ML/d of passing flow at their Minimum Operating Level. Secondly, to supply the irrigators, the Val Bird Weir would have to provide at least 100 ML/d of passing flow at its Nominal Operating Level. As these upgrades must be completed before the August 2, 2014 expiry of the ROP grace period, it was recommended that the detailed design of these be progressed, with a view to constructing the required upgrades in the 2013/14 Financial Year. To ensure the pipe would operate under full flow conditions (thus providing the flow meter with the best conditions for measuring) the pipe would use an inlet box and bubbler arrangement. The Siemens MAGFLO 3100 flow meter that was considered in the preliminary design requires a straight pipe length of five times the pipe diameter upstream and three diameters downstream to ensure laminar flow conditions for measuring, thus partially determining the dimensions and arrangement of the flow meter and regulating gate.

Two options were available to provide water flow through the weirs – a cut channel regulated by a gate, or a pipe outlet. The channel option was initially considered, but was discarded as the level to which it would be feasible to cut, would not allow sufficient flow at the Minimum Operating Level for either weir. Additionally, cutting a channel through the weir would introduce a weak point, possibly compromising the structural integrity of the weirs.

The pipe outlet option would not introduce a weak point into the weir's structure, and could be set lower in the weir than a channel could. Also, control mechanisms, such as flow meters and regulating gates, could be easily attached. As such, the pipe outlet became the preferred option.

Material Projects 2023-41

Projects in the R&E plan for 2023-41 should be viewed as indicative at this stage and will be refined as the next pricing review draws closer.

Replace High Voltage System - Burdekin Falls Dam

Year: 2023

Current estimate: \$3.4m

Options analysis completed: No

The project will be required because of end of physical life for this asset. Condition assess cables through an ongoing program of electrical testing to monitor ageing and deterioration to better determine replacement timelines. Options analysis to be performed prior to implementation. Options are limited to maintaining assets in service for as long as possible and then replacing on a like for like basis or using alternative distribution methods such as overhead, if this is possible or practical.

Replace Cable - Burdekin Falls Dam

Year: 2024

Current estimate: \$3.1m

Options analysis completed: No

The project will be required because of end of physical life for this asset. Condition assess cables through an ongoing program of electrical testing to monitor ageing and deterioration to better determine replacement timelines. Options analysis to be performed prior to implementation. Options are limited to maintaining assets in service for as long as possible and then replacing on a like for like basis or using alternative distribution methods such as overhead, if this is possible or practical.

Replace Trash Screens - Burdekin Falls Dam

Year: 2038

Current estimate: \$4.6m

Options analysis completed: No

Replace trash screen. The project will be required because this date represent the expected end of the physical life of these screens. A condition assessment and option analysis will be performed prior to the replacement of the screens.

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Appendix – Operating Expenditure by Expense Type

Table 7 below shows the operating expenditure for the service contract categorised by expenditure type. Operating expenditure below includes other non-routine work funded by the annuity.

Table 7 – Expenditure for Activity by Type⁴

	2013		2014	
	QCA Target (\$'000)	SunWater Budget (\$'000)	QCA Target (\$'000)	SW Draft Budget (\$'000)
Operations				
Labour	680	614	701	649
Materials	47	80	49	59
Contractors	17	17	18	27
Other	351	494	357	562
Non-direct	1,484	1,463	1,560	1,320
Operations Total	2,579	2,668	2,685	2,617
Preventive				
Labour	98	95	102	101
Materials	14	13	14	13
Contractors	34	34	35	34
Other	1	1	1	1
Non-direct	210	217	221	197
Preventive Total	357	360	373	346
Corrective				
Labour	51	51	52	53
Materials	51	52	53	51
Contractors	11	11	11	9
Other	0	0	0	0
Non-direct	110	117	116	104
Corrective Total	223	231	232	217
Electricity	96	103	102	110
Total Operating Exp.	3,255	3,362	3,392	3,290
R&E Annuity Funded ⁵	421	445	234	627
Dam Safety and other	0	5,000	0	0
Grand Total	3,676	8,807	3,626	3,917

⁴ Nominal dollar figures can be converted to real dollars (\$2011) by dividing by the conversion factors in Table 1.

⁵ R&E and Dam Safety are built up from the same expenditure types shown for opex, including non-directs.