BUNDABERG REGIONAL IRRIGATORS GROUP
REPRESENTING MEMBER IRRIGATORS IN THE BUNDABERG IRRIGATION AREA

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8 March 2019

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SUNWATER PRICE REVIEW: 2020-2024

Bundaberg Regional Irrigators Group (BRIG) was established to represent irrigators in the Bundaberg district across a range of commodity groups including sugarcane, grain and horticulture.

The Board and management of BRIG are all stakeholders and irrigators and represent in excess of 66% of the nominal allocation in the Bundaberg scheme.

We have members in every segment of the scheme.

We wish to see a sustainable outcome for all irrigators in all sections of the scheme and also for SunWater's long term sustainability.

The BRIG Board has engaged JACOBS to assist us in responding to the Bundaberg component of the SunWater Price review.

JACOBS report is attached.

We would be pleased to assist SunWater and the QCA in this matter and are available should you wish to discuss further.

Dale Holliss
Company Secretary
0417 009 236

cc Lisa Welsh

BRIG Submission for SunWater Review

BRIG

BRIG Submission

1 | FINAL

8 March 2019

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BRIG Submission for SunWater Review

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1a	5/2/19	Draft	Kim Hoye	Matt Bradbury	Angus MacDonald
1b	8/3/19	Final	Kim Hoye	Matt Bradbury	Angus MacDonald

Contents

Executive Summary

With 14 pump stations delivering up to 180 GL of water, electricity is a major component of costs in the Bundaberg distribution scheme. This makes SunWater's management of electricity costs a key concern of the Bundaberg Regional Irrigators Group (BRIG).

A summary of BRIG's requests is:

- That SunWater publishes information on pump station energy demand (in kW), usage (in kWh) and selected tariffs for each of the 14 pump stations in the Bundaberg scheme
- The QCA should review whether SunWater is purchasing and using electricity is the most efficient manner.
- The QCA investigation includes considering the efficiency of off grid electricity supplies relative to grid supplied energy
- The QCA reviews the cost per ML for an average mix of scheme usage.
- The QCA reviews escalations in electricity prices SunWater uses to establish the efficient base year.
- SunWater should provide further information, and the QCA should review:
  - The derivation of the base year
  - The calculation of escalation rates and the appropriate timing
- The QCA reviews SunWater's use of a 15-year average for water use.
- The fixed and variable nature of the scheme's electricity tariffs be considered and that, variable (pure $/kWh usage) charges use be allocated to variable water charges, access charges ($/day) are allocated to fixed water charges and demand charges ($/kW) are allocated to:
  - variable charges with electricity charge adjustments
  - fixed charges with no electricity charge adjustments
- A quarterly cost reflective variable electricity charge as a Part E tariff.

1. Introduction

On 29 October 2018, The Honourable Jackie Trad, Treasurer and Minister for Aboriginal and Torres Strait Islander Partnerships directed the Queensland Competition Authority (QCA) to undertake an investigation about pricing practices in relation to rural irrigation prices to apply from 1 July 2020 to 30 June 2024.

SunWater submitted the first tranche of its pricing submission to the QCA on 6 November 2018.

Jacobs (we) has been engaged by the Bundaberg Regional Irrigators Group (BRIG) to prepare a submission for the QCA, responding to SunWater's Network Service Plans (NSP) and proposed prices. BRIG has directed us to focus our investigation on electricity costs and their pass through to customers.

1.1 Key documents

To inform this report, we have relied on the following sources:

1) Ministerial Referral and Direction Notice (29 October 2018) – QCA investigation about pricing practices in relation to rural irrigation prices to apply from 1 July 2020 to 30 June 2024
2) Bundaberg - Distribution Service Contract – 2018/19 to 2023/24 NSP (2018)
3) Bundaberg Distribution BIG Asset Management Plan 2019 to 2024
4) SunWater pricing model – updated on 21 December 2018
5) QCA's relevant reports or publications
6) Communications with SunWater.

2. Prudency and efficiency

Electricity costs are a significant and increasing component of total water charges. Ergon's tariffs are made up of the following charges:

- a flat daily connection charge
- a demand charge based on the maximum amount of power used in each month above a demand threshold, measured in kVA
- a usage charge based on the amount of energy used in, measured in kWh.

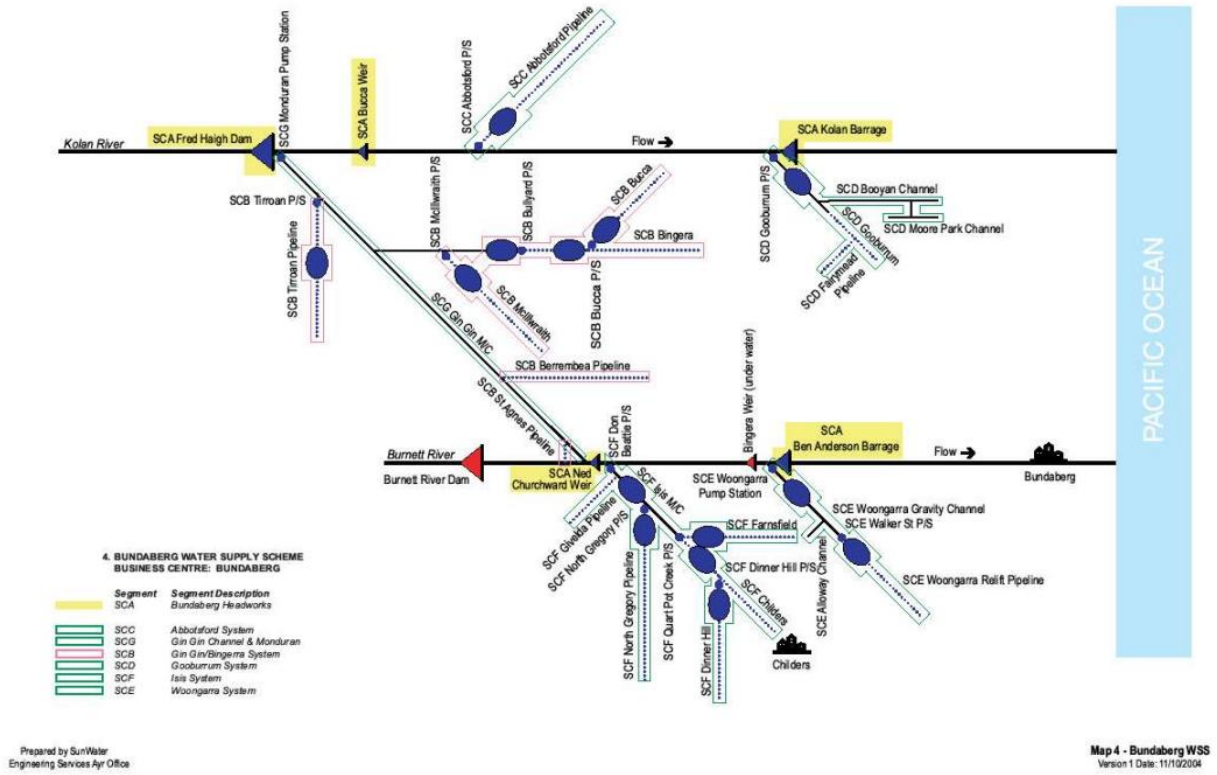
SunWater incurs electricity costs running the Bundaberg Distribution Scheme's 38 pumps at its 14 pump stations.

Table 2 1: Bundaberg pump stations

Pump station	Number of pumps	Total capacity (ML/day)
Monduran	3	1,100
Don Beattie	3	648
Bullyard Creek	4	415
Woongarra	5	395
Gooburrum	2	300
Quart Pot Creek 1	2	250
Quart Pot Creek 2	2	275
Walker Street	4	225
Dinner Hill	3	160
Tirroan	2	72
North Gregory	2	63
Bucca	2	60
McIlwraith	2	60
Abbotsford	2	24

Source: 2018/19 TO 2023/24 NETWORK SERVICE PLAN Bundaberg Distribution Service Contract (2018)

Figure 2.1: Bundaberg Distribution Scheme schematic



Source: Bundaberg Distribution BIG Asset Management Plan (2018)

The water lifting requirements of reaching some productive areas of the scheme compared to the altitude of Fred Haigh Dam or pump stations along the Kolan and Burnette rivers contribute to electricity costs.

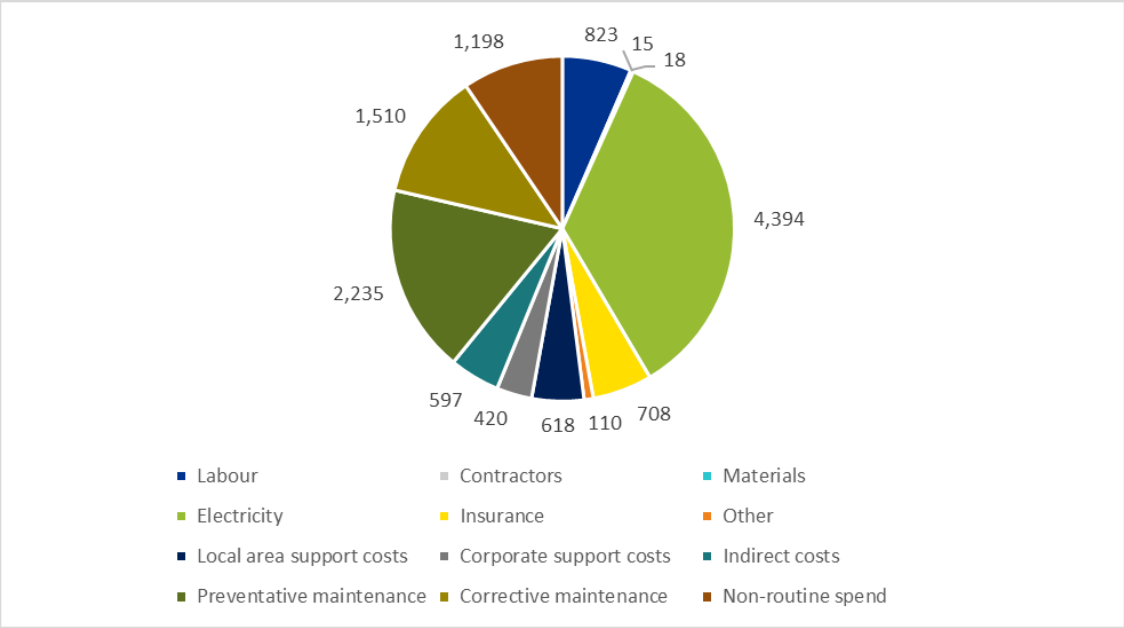
Table 2.2: Hight of pump stations and associated irrigation areas

Sub-system	Hight above sea level (M)
Fred Haigh Dam (Monduran Pump Station)	**76**
Gin Gin	40-108
Bingera	32-88
Don Beatie Pump Station	**30**
Isis	77-111
Woongarra Pump Station	**14**
Woongarra	7-71
Abbottsford Pump Station	**17**
Abbotsford	36-69
Gooburrum Pump Station	**12**
Gooburrum	6-27

Source: Google Earth

The 14 pump stations mean electricity is 57 per cent of operating costs, and 35 per cent of total costs in 2018.

Figure 2.2: Bundaberg Distribution total costs in 2018 ($ '000)

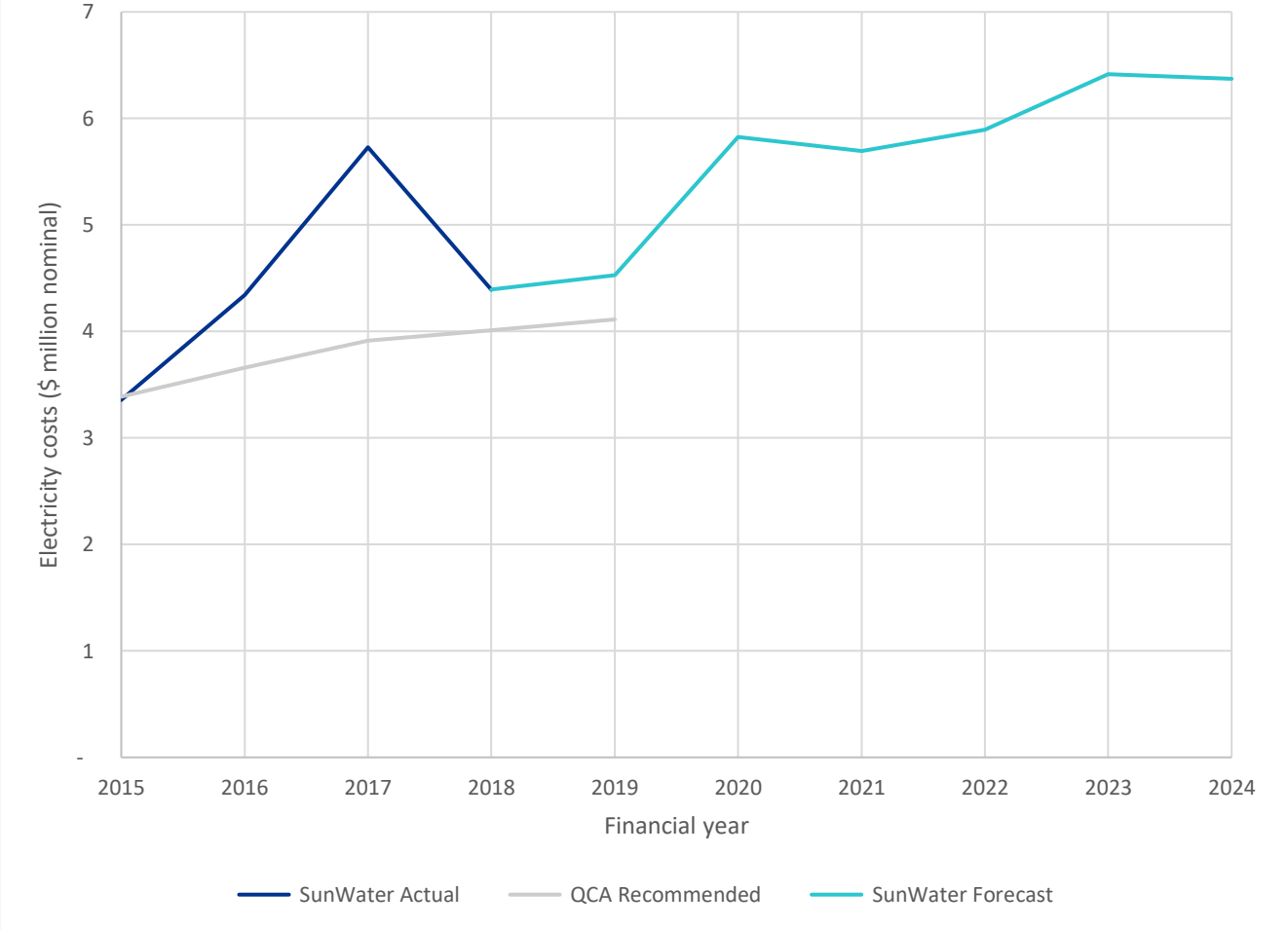


Source: SunWater pricing model – updated on 21 December 2018

2.1 Base year analysis

SunWater's electricity costs have been consistently above QCA recommended costs from 2015 to 2018.

Figure 2.3: Annual Bundaberg distribution electricity costs



Source: SunWater pricing model – updated on 21 December 2018

SunWater's electricity costs increased by 29% in 2016 and 32% in 2017, resulting in a 71% increase from 2014 costs. A fall of 29% brought SunWater's costs close to QCA's recommended costs.

Figure 2.4: Change in SunWater's actual Bundaberg distribution electricity costs ($ '000 nominal)

Year	2015	2016	2017	2018
SunWater actual electricity costs	3,356	4,344	5,729	4,394
Annual change		**988**	**1,385**	**-1,335**
Annual change (%)		**29%**	**32%**	**-23%**

Source: SunWater pricing model – updated on 21 December 2018

SunWater is proposing initiatives to manage electricity costs, including:

- annual tariff reviews to match electricity usage with the best electricity tariff
- testing the contestable market for potential savings
- ensuring assets are operating as efficiently as possible, with clear asset management plans for least whole of life cost pump stations
- operational management of usage to reduce the impact of demand charges.

Without more detailed information, BRIG cannot assess the potential of SunWater's proposals to manage electricity. In particular, there is limited mention in SunWater's report of possible off grid options to reduce electricity costs, such as solar or diesel generators.

In addition, SunWater has only proposed annual tariff reviews. Ergon allows users to change tariffs. The first change does not attract a charge. Thereafter, the charge is $38. BRIG members use this opportunity. SunWater could take advantage of this with mid-year tariff reforms, such as at the end of high water use growing seasons.

Recommendation

BRIG requests that SunWater publishes information on pump station energy demand (in kW), usage (in kWh) and selected tariffs for each of the 14 pump stations in the Bundaberg scheme.

The QCA should review whether SunWater is purchasing and using electricity is the most efficient manner.

BRIG requests the QCA investigation includes considering the efficiency of off grid electricity supplies relative to grid supplied energy.

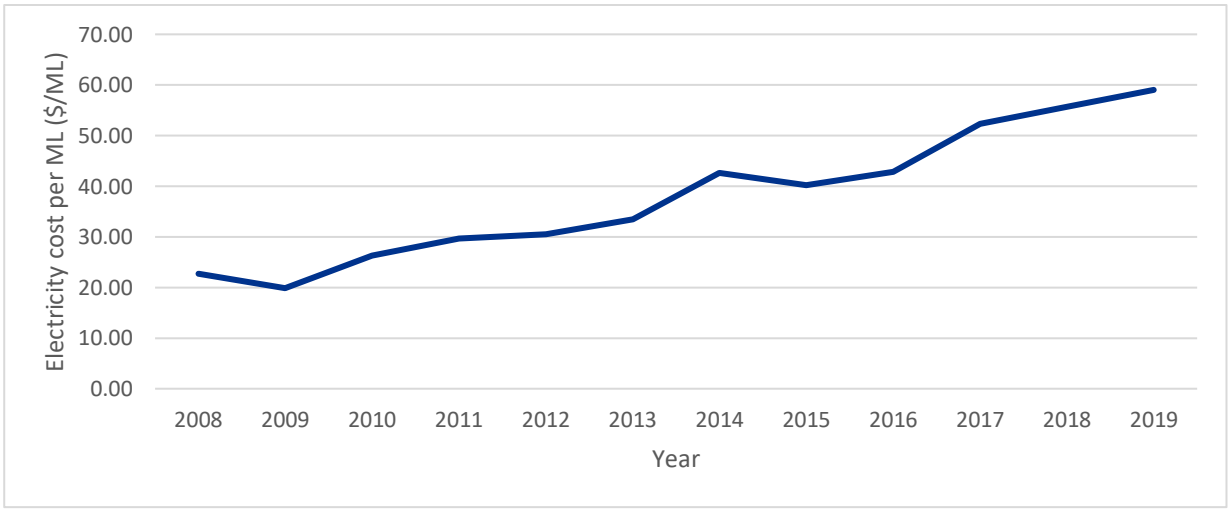
2.2 Base year estimation

SunWater has adopted 2018-19 as the base year. In this year, the electricity cost is forecast to be $4.528 million. We assume that this is forecast on the basis of average water use less Burnett Water use and QCA approved losses (76,714 ML)[1]. This equates to $59.02 per ML of forecast water use.

The total electricity cost was $5.728 million with adjusted water use of 109,444 ML in 2016-17. This equates to $52.34 per ML. Based on this analysis, SunWater has increased its base year costs per ML by 12 per cent since the end of the 2012-2017 price path.

The following graph shows the electricity costs per ML supplied by SunWater in correspondence[2].

Figure 2.5: Past electricity cost per ML escalation



Source: SunWater email dated 26 February 2019

Over this period, regulated prices have increased at a much lower rate. For example, tariff 62 has increased by 5.1 per cent over the same period (see table below). We understand that a number of sites are currently on

[1] SunWater email dated 26 February 2019
[2] SunWater email dated 26 February 2019

Tariff 62. SunWater's proposed base year increase is materially higher that its own historical costs. Therefore, we request that SunWater explains its approach to setting base year for the QCA to consider in its draft report.

Table 2.3 : Electricity price increases

Tariff	2017-18 price increase (%)	2018-19 price increase
20 (Large) – transitional	7.6	0
21 – Transitional	5.1	0
22 (small and large) – transitional	7.6	0
37 – obsolete	7.6	0
47 – obsolete	7.6	0
48 – obsolete	11.3	0
62 – transitional	5.1	0
65 – transitional	4.5	0
66 - transitional	4.5	0

Source: QCA 2017-18 Final Determination of Regulated Electricity Prices (2017), QCA 2018-19 Final Determination of Regulated Electricity Prices (2018)

SunWater has explained the increase in two parts in correspondence with BRIG[3]:

- Changes in water use in different parts of the scheme, which have different electricity requirements. For example, water delivery to Isis costs more than water delivery to Gooburrum, downstream of the Fred Haigh Dam.
- The electricity price increases used by SunWater for electricity price increases. SunWater has used the Australian Energy Market Operator's the retail electricity price history and projected trends[4]. The forecast price escalation over the period from 2017 to 2020 is approximately 6.7%.

BRIG has concerns with the escalation method used by SunWater to establish the base year:

- Changing between different areas of the scheme would show an up and down movement in prices. The base year should use an average mix of scheme usage, rather than a mix with higher or lower than average electricity costs per ML.
- The retail electricity price escalation forecast covers a four-year period. Electricity price forecasts are uncertain due to large possible changes in wholesale markets. As the QCA has already declared Ergon's tariffs for 2018-19, these should be used rather than uncertain forecasts.

Recommendations

BRIG requests the QCA reviews the cost per ML for an average mix of scheme usage.

BRIG requests the QCA reviews escalations in electricity prices SunWater uses to establish the efficient base year.

2.3 Escalation forecasts

SunWater has forecast future electricity costs by escalating the base year, using the following annual rates.

Table 2.4: SunWater forecast electricity cost per ML increases

2020	2021	2022	2023	2024
28.91%	-2.09%	3.70%	9.04%	-0.45%

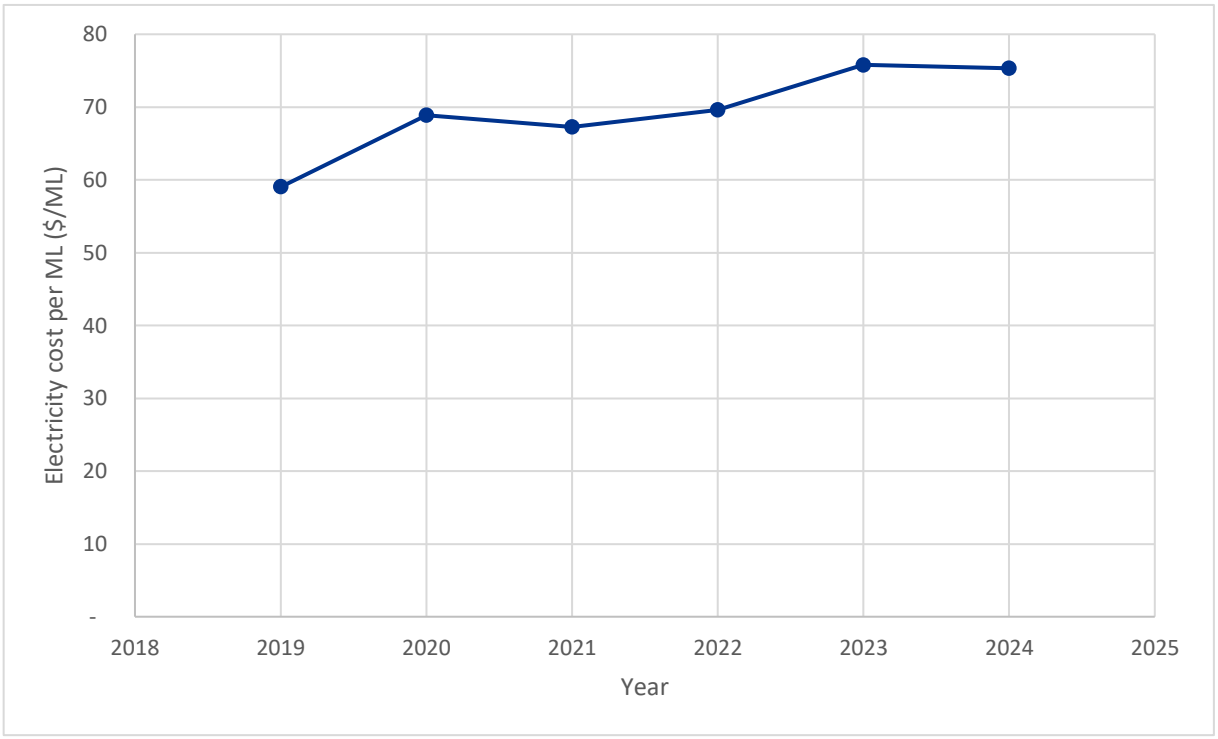
[3] SunWater email dated 26 February 2019

[4] https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning_and_Forecasting/Demand-Forecasts/EFI/Jacobs-Retail-electricity-price-history-and-projections_Final-Public-Report-June-2017.pdf

Source: SunWater pricing model – updated on 21 December 2018

This results in the following forecast electricity costs per ML.

Figure 2.6: Escalation of electricity costs per ML



Source: SunWater pricing model – updated on 21 December 2018

SunWater's proposed electricity costs include a 29% increase in 2020. SunWater has not documented the reason for this increase. The increase is of concern to BRIG because:

- SunWater stated this increase is due to transition from obsolete to standard electricity tariffs in correspondence with BRIG[5]. The QCA has set 30 June 2020 as the date obsolete tariffs are removed. This would mean obsolete tariffs are available for the 2019-20 financial year. If transitioning to standard business tariffs leads to a 29% increase, the increase should occur in the 2020-21 financial year. SunWater's correspondence acknowledge this issue and indicated electricity escalation rates are under review.
- Energy Queensland has explored and is supportive retaining transition tariffs for existing Large customers under the name legacy tariffs. There may be scope for the QCA to develop legacy retail tariffs based on the legacy network tariffs. Alternatively, an alternative retailer may be able to offer legacy retail tariffs for customers already using the legacy network tariffs. If this occurs, SunWater may have the opportunity to avoid the 29% increase in this price path

Furthermore, the QCA Draft Determination on 2019-20 electricity tariffs has no price increases for obsolete tariffs.

Tariff	2019-20 price increase
20 (Large) – transitional	0
21 – Transitional	0
22 (small and large) – transitional	0

[5] SunWater email dates 15 February 2019

Tariff	2019-20 price increase
37 – obsolete	0
47 – obsolete	0
48 – obsolete	0
62 – transitional	0
65 – transitional	0
66 - transitional	0

Due to the limited detail in SunWater's submission, BRIG cannot analyse tariff transitions or any other drivers of electricity escalation.

Recommendation

SunWater should provide further information, and the QCA should review:

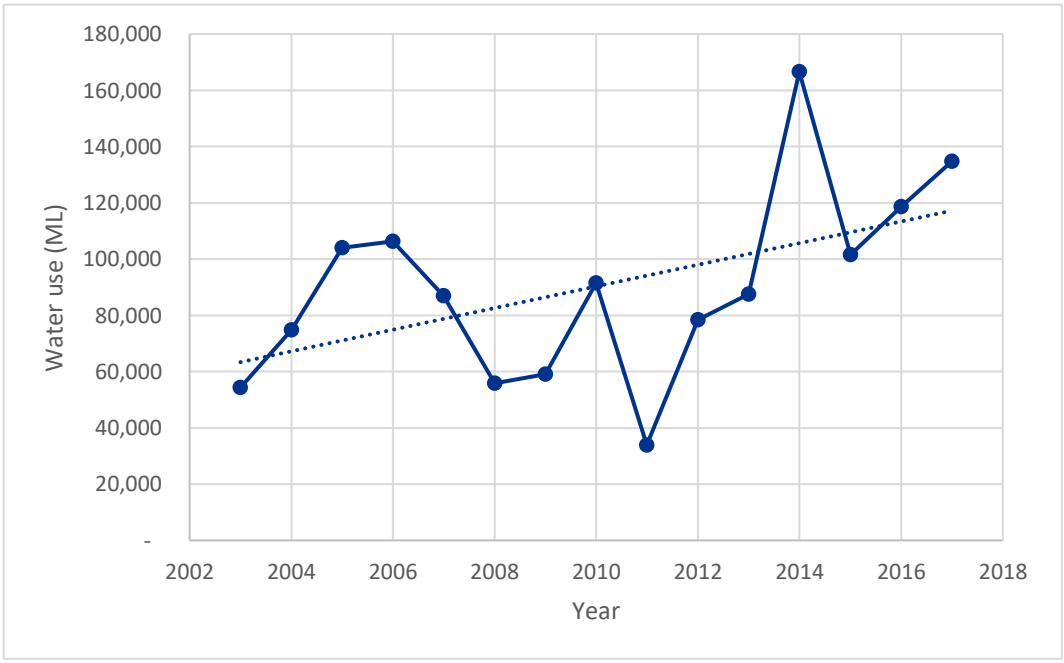
- The derivation of the base year
- The calculation of escalation rates and the appropriate timing.

2.4 Water use

SunWater has used the 15-year average to calculate the assumed water use of 85 GL, 45% of allocations. The QCA recommended 48% in the 2012-17 price review.

Although water use varies from year to year, water use seems to exhibit an upward trend.

Figure 2.7: Historical water use in the Bundaberg Distribution Scheme



Source: SunWater NSPs

The QCA draft report for the 2012-17 review recommended using an adjusted 8-year average. The 8-year average of water prices in Bundaberg is 102 GL, 54% of available allocations. This includes the lowest water use year from 2003.

Furthermore, the 15-year average of total water use is 90,265 ML. SunWater did not provide details of the conversion from total water use to irrigator water use in its pricing submission.

SunWater has provided further details in correspondence with BRIG, shown in the table below, to calculate a chargeable irrigator water use of 73,329 ML[6].

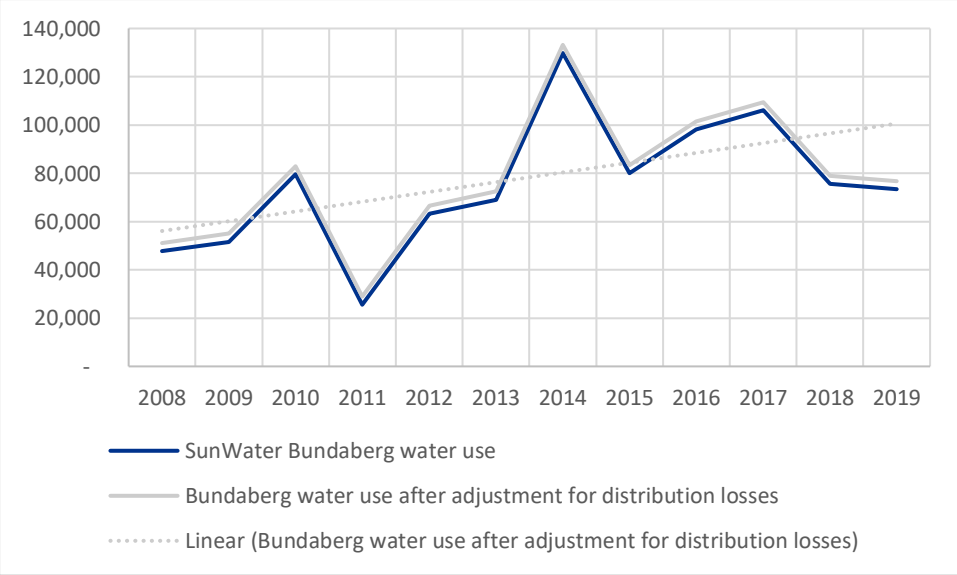
Table 2.5: SunWater adjustment to 2019 forecast water use

Item	Water use (ML)
Bundaberg Distribution Scheme	73,329
Distribution losses - QCA regard as surplus	3,385
Distribution losses - QCA estimation	12,542
Burnett Water	7
Total use	**89,263**

BRIG is concerned about the removal of surplus distribution losses from total water use. In its 2012-2017 review, the QCA regarded this amount excess to the unavoidable losses SunWater would expect delivering water and are available for SunWater to trade. BRIG considers distribution losses continue to be include in water use to recover charges from.

The following graph shows historical water use after adjustment for Burnett Water use and distribution losses. BRIG has created a second series with surplus distribution losses reapplied to water use.

Figure 2.8: Water use after adjustment for Burnett Water use QCA recommended distribution losses



A linear regression suggests an upward trend in water use, with trend water use in 2019 around 100,000 ML.

Recommendation

BRIG requests the QCA reviews SunWater's use of a 15-year average for water use.

BRIG requests the QCA reviews SunWater's application of distribution losses and BurnettWater adjustments to the total Bundaberg water use.

[6] SunWater email dated 26 February 2019

3. SunWater electricity tariff (Part E)

BRIG welcomes SunWater's electricity true-up proposal and proposes an alternative approach to true-up electricity costs that is quicker, more accurate, better targeted and will result in greater economic efficiency. BRIG welcomes the opportunity to discuss the practical implementation issues with SunWater and the QCA.

3.1 Current recovery of electricity costs

3.1.1 SunWater proposal

SunWater proposed the following arrangements for an electricity true-up during the next price path period:

- All electricity costs to be allocated to the volumetric component of the irrigation charge
- The QCA recommendation for irrigation prices to include a transparent electricity cost per megalitre in each year of the price path period for each service contract
- The QCA recommendation to include a requirement for SunWater to report to the QCA actual electricity costs for each service contract area, reconciled to audited annual reports in each financial year. This report would be due no later than 31 December of the year the financial year ends (up to six months in arrears).
- The QCA recommended Part B and D prices for the Minister in 2022/23 to include an adjustment factor representing the difference between:
  - the actual electricity costs for 2020/21 in each service contract reconciled to financial year actuals divided by the forecast megalitres used by the QCA in 2020/21 to establish the volumetric charge for each service contract area
  - the forecast electricity costs in 2020/21 divided by the forecast megalitres used by the QCA in 2020/21 to establish the volumetric charge for each service contract area
- The QCA recommended Part B and D prices for the Minister in 2023/24 include an adjustment factor representing the difference between:
  - the actual electricity costs for 2021/22 in each service contract reconciled to financial year actuals divided by the forecast megalitres used by the QCA in 2021/22 to establish the volumetric charge for each service contract area
  - the forecast electricity costs in 2021/22 divided by the forecast megalitres used by the QCA in 2021/22 to establish the volumetric charge for each service contract area.

3.1.2 Fixed vs variable

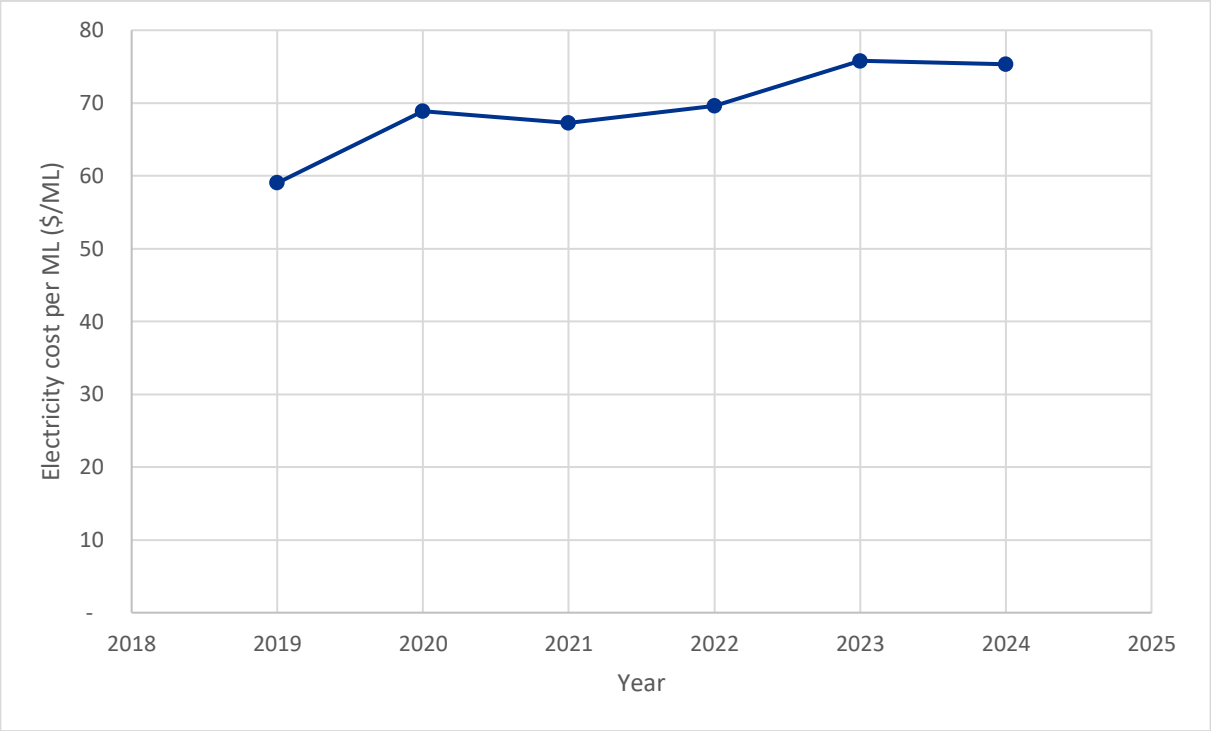
In SunWater's model for this review, SunWater has treated 100% of electricity costs as variable. Under potential demand tariffs, a material portion of electricity costs are fixed as they relate to the daily change that is not impacted by maximum demand or use. The daily charge should be recovered through the fixed charge.

This is consistent with the QCA's principles established in Volume 1 of the previous SunWater review, where it recommended that fixed costs be recovered via fixed charges and variable costs be recovered via variable (water use) charges.

In its 2012-17 electricity model, SunWater identified $97,495 as fixed electricity costs for the Bundaberg Distribution Scheme. This amount may have changed with the introduction of demand electricity tariffs.

Demand charges are typically incurred whenever a pump is turned on during the month, whether for 15 minutes or for 30 days. Because the Bundaberg Scheme includes 14 separate pump stations, the demand charge can vary depending on where water is delivered. The following graph shows a general trend that electricity costs that electricity costs per ML increases as water delivered increases, suggesting increased demand charges. If usage charges remain constant. However, this relationship could change as the transition to demand tariffs continues.

Figure 3.1: Electricity cost vs water use



Note: Electricity costs have been escalated at 2.5% to 2018-19 dollars.

Source: SunWater NSPs

However, If SunWater recovered demand charges through the volumetric charge only, then SunWater would face significant revenue risk. It would need to pay for the monthly demand tariff irrespective of the amount of water delivered. The demand charge could exceed the revenue received from water deliveries.

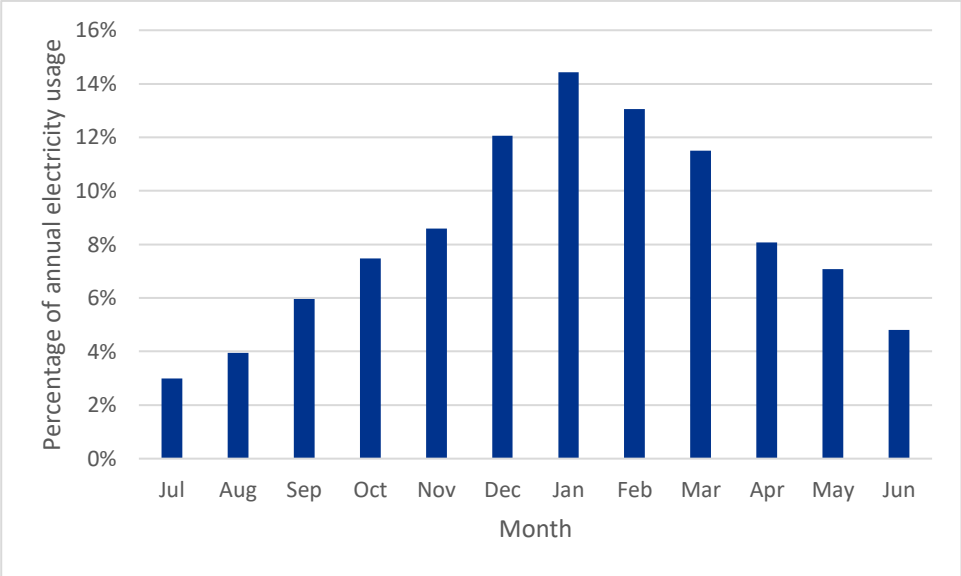
In the past, the QCA has allocated costs to the party best able to manage the risk and therefore concluded that whomever that party is, should bear that cost. Customers have limited or no control over the management of peak demand / load management; whereas SunWater as the pump operator has a high degree of day-to-day operational control about how and when pumps (and other electricity using equipment) are deployed.

As importantly, reducing semi-fixed or demand charges – peak lopping – is within SunWater's control, for example, in most cases it can invest in variable speed drives, soft starts or other devices to reduce peak load. SunWater can also introduce in-channel monitoring and optimise delivery of water to a distribution scheme to reduce peak electricity use. By contrast, customers cannot control SunWater's peak demand. Finally, as indicated in its submission (2019 NSP) SunWater can change tariffs to minimise such charges.

Conversely, with an electricity cost adjustment, customers would be given control over when the demand charge is triggered. A well implemented adjustment would allocate the demand charges to the customers who ordered the water. This would give customers a clear signal to avoid pumping in periods of low water demand.

The importance of providing this price signal is shown in the following graph. Electricity usage increases in December, which also corresponds with the summer electricity tariff window. A price signal would encourage users to pump in November, potentially reducing demand charges.

Figure 3.2: SunWater pump station electricity use profile



Recommendation

BRIG recommends that the fixed and variable nature of the scheme's electricity tariffs be considered and that:

- variable (pure $/kWh usage) charges use be allocated to variable water charges
- access charges ($/day) are allocated to fixed water charges
- demand charges ($/kW) are allocated to:
  - variable charges with electricity charge adjustments
  - fixed charges with no electricity charge adjustments.

3.1.3 QCA pricing principles and Ministerial Direction

The QCA Statement of Regulatory Pricing Principles for the Water Sector[7] provides some guidance. Relevant excerpts include:

> *Cost pass-through arrangements may have unintended and undesirable impacts on regulatory incentives. For example, if the regulatory regime permits one category of costs to be automatically passed-through to consumers, there may be a bias towards this expenditure at the expense of any appropriate substitute*
>
> and
>
> *Equity considerations also need to be taken into account and have a number of dimensions, including … fairness between different users over time.*

Furthermore, the Ministerial Referral Notice to the QCA initiating the 2020-24 review[8], the Minister states:

> *I direct the Authority to make recommendations about the following matters:*
>
> > *appropriate price review triggers and other mechanisms, to manage the risks associated with material changes in the allowable costs identified in paragraph C(1.2) outside the control of the businesses.*

[7] http://www.qca.org.au/getattachment/fba12b74-f307-45e9-91f4-6dc9cf50509c/Statement-of-Regulatory-Pricing-Principles-for-the.aspx
[8] http://www.qca.org.au/getattachment/59e4a842-109a-4509-bb50-7b8290a5e0be/Referral-notice.aspx

The SunWater proposal to treat electricity as a cost pass-through diminishes the regulatory incentives for SunWater to reduce its electricity costs. Therefore, the role of the QCA to ensure that the base year is efficient becomes more important. Further, given that electricity is a sector with innovative potential, the QCA may wish to consider an ongoing efficiency improvement to take into account off grid options to reduce electricity costs, such as solar or diesel generators. There is no evidence that SunWater has sought to innovate in this way, and it is essential the economic regulation provides the necessary incentives to do so.

Further, when recommending prices, it is essential that intergenerational equity is taken into account. SunWater's proposal to amend prices two years into the future separates the party that requires SunWater to incur the cost and the party that pays the cost. Water use patterns can change annually, at an individual farm level. The QCA should consider the impact on fairness when considering SunWater's proposal.

3.1.4 Analysis of SunWater's electricity adjustment

We have identified four concerns with SunWater's proposed approach.

3.1.4.1 Equity and fairness

BRIG does not agree with electricity adjustments two years after water use has occurred. The currently proposed system for electricity costs could lead to large inter-generational shifts in price between years. As noted above, this is inconsistent with the QCA's pricing principles.

This is of particular concern in the Bundaberg Distribution System where at least 1/3 of the cost is electricity. The price of electricity is uncertain over the coming 5-year period. In addition, the amount of electricity used per ML pumped can vary with delivery point, time of use and changes in pump efficiency and distribution losses in various channel sections.

3.1.4.2 Calculation of the cost pass-through

BRIG proposes the electricity cost adjustment as much as possible captures only changes in price. SunWater's adjustment captures both changes in price and quantities. This leads to double counting, as changes in quantity are also reflected by charging variable charges against water use. SunWater's approach is to determine the difference between forecast and actual electricity costs, converted to a per ML amount based on forecast (not actual) water use.

This amount (per ML) is then added (or subtracted) from future prices. However, if the difference in electricity costs is caused by a change in electricity use relative to forecast, then this adjustment is unnecessary.

For example, consider if forecast costs were $200,000 and forecast water use was 20,000. This implies that electricity is $10/ML. Then, actual electricity costs are $100,000 and actual water use is 10,000 – again implying electricity costs of $10/ML. Actual revenue is $100,000 – perfectly offsetting costs. This is set out below.

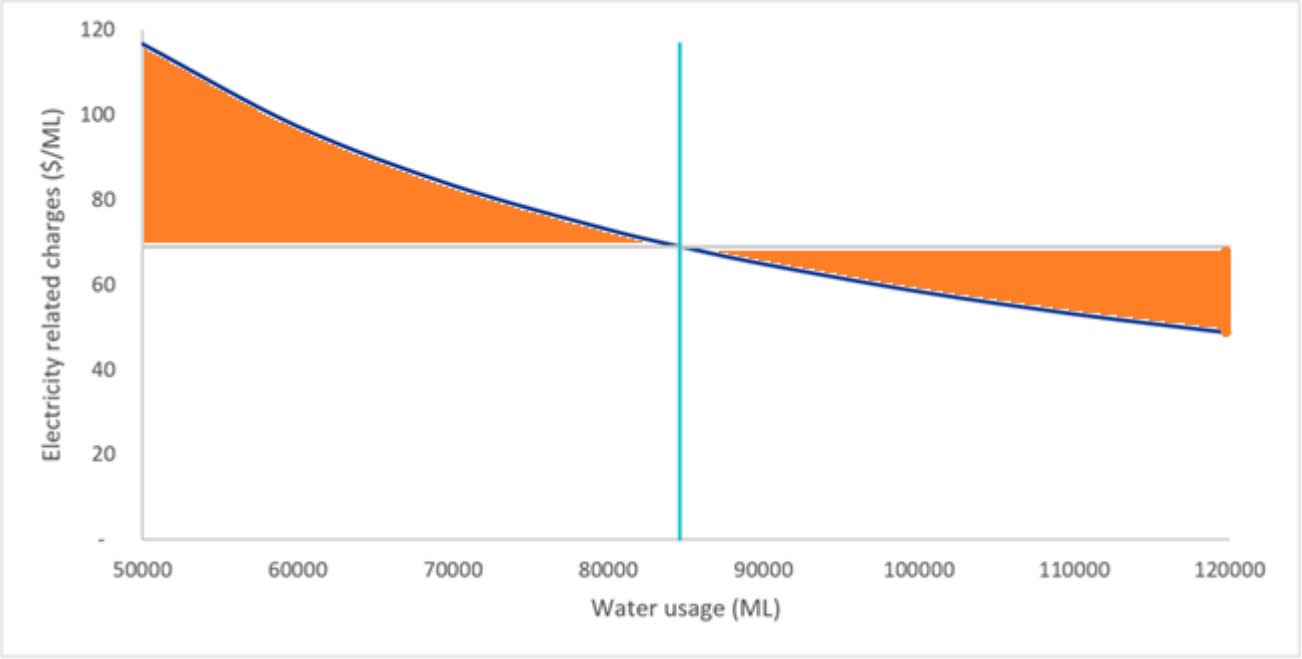
	Actual	Forecast	Difference
Electricity cost	100,000	200,000	-100,000
Water use	10,000	20,000	-10,000
$ per ML	10	10	0
SunWater revenue	100,000	200,000	-100,000

However, under SunWater's approach, the cost pass through would be calculated to be (100,000/20,000) – (200,000/20,000) = -$5/ML. SunWater would reduce its future price by $5 per ML. This is not needed as costs and revenue have both been lower than forecast by an offsetting amount.

Instead, SunWater should divide its actual electricity costs by actual (not forecast) water use. This isolates the impact of a change in costs, not a change in water use.

SunWater's adjustment is generalised in the following graph. BRIG would expect charges to decrease as electricity related costs per ML decrease. This would be anywhere below the grey horizontal constant cost per ML line. Under SunWater's approach, when revenue drops below forecast charges decrease. This is anywhere below the blue curved constant revenue line. This means that in the orange shaded areas, SunWater's approach gives the opposite adjustment to what BRIG would expect.

Figure 3.3: SunWater's electricity adjustment



3.1.4.3 Implementation of pass-through

Using the above example, SunWater would reduce the variable charge by $5/ML in order to return $100,000 to customers. However, if actual water use continues to be lower than forecast, and be 10,000 ML, then the reduction in revenue will be $50,000. Likewise, if actual water use is 30,000 ML, then the revenue reduction will be $150,000.

Although SunWater seeks an approach that provides it with revenue certainty, the proposed approach will not do it.

3.1.4.4 Lack of incentives to change behaviour

SunWater's proposal addresses their concerns about revenue adequacy. However, the approach does not provide an incentive for SunWater to reduce its electricity costs, as it can recover their actuals. Neither does the approach provide a price signal to irrigators to make efficient decisions about when to order water. This is particularly relevant as demand tariffs can result in a large cost with only a small use (15 minutes). If customers were faced with this cost, they may make more efficient pumping decisions.

The QCA should ensure that any cost pass-through mechanism results in the appropriate incentives for SunWater to reduce its costs.

3.2 BRIG proposal

BRIG believes that variable electricity should be a separate tariff component. This approach could be limited to schemes where electricity makes up a significant portion of the total delivery cost. As with the 2012-17 review, BRIG proposes that the tariff structure be further unbundled to:

- Part A - Bulk Fixed Charge
- Part B - Bulk Volumetric Charge
- Part C - Distribution System Fixed Charge
- Part D - Distribution System semi variable volumetric charge
- Part E - Distribution System electricity volumetric charge.

The Australian Energy Regulator's pending review of Queensland electricity tariffs and the possibility of retaining legacy tariffs mean that electricity costs cannot be estimated with any acceptable level of confidence. With Part E operating as a cost pass-through mechanism for electricity only, the requirement to estimate uncertain future electricity costs is negated. Price signal transparency is also achieved and allows end users to better match marginal cost and marginal benefit to use of additional water (Refer page 49 Volume 1, 2012-17 SunWater Review).

3.2.1.1 Costs and water use from proceeding quarter

A Part E tariff would be able to change more regularly than other tariff parts. This would be particularly useful capturing the effects of seasonal electricity tariffs.

For example, Ergon's seasonal demand tariffs have high charges for demand during the summer months and lower charges during the winter. A quarterly Part E update would allow irrigators who pump their water outside of the summer months to be rewarded through lower water charges.

The proposed method is to:

- Receive electricity bill for the quarter
- Read all meters (or through automatic meter reading) on the last day of the quarter
- Divide total electricity costs by total water use. This is the Part E charge
- Send out bills and receive Part E revenue that completely recover electricity costs.

3.2.1.2 Annual tariff review

In its 2012-17 review, the QCA raised concerns that an electricity true up would remove the benefits of an ex ante review, such as providing an incentive for SunWater not to let costs exceed the determination.

The removal of oversight could be partially overcome with an annual electricity tariff review, such as the one proposed by SunWater in its submission.

BRIG would expect this review to consider to:

- Consider the tariff of each of Bundaberg's 14 pump stations and identify the tariff which would result in the lowest cost considering the pump stations usage pattern.

3.2.1.3 Benefits of BRIG approach

The BRIG approach is perfectly cost-reflective. The customers that consume the water pay the cost of the water. There is no annual averaging, or mismatch between who users and who pays two years later.

SunWater has no revenue risk, and customers face the full cost of their use.

3.2.1.4 Customer impacts

We have calculated the impact the Part E tariff would have had using past electricity costs and water usage. We have calculated an annual charge as we do not have access to quarterly electricity costs.

The following table shows electricity costs per ML under different approaches. In the following table:

- QCA approved costs are 100% variable and use forecast escalation
- Actual electricity costs reflect the annual mix of fixed and variable costs and price escalation
- The electricity costs with Part E tariffs use forecast fixed costs and price escalations, but actual annual variable costs and escalations.

Table 3 1: Electricity prices per ML ($/ML)

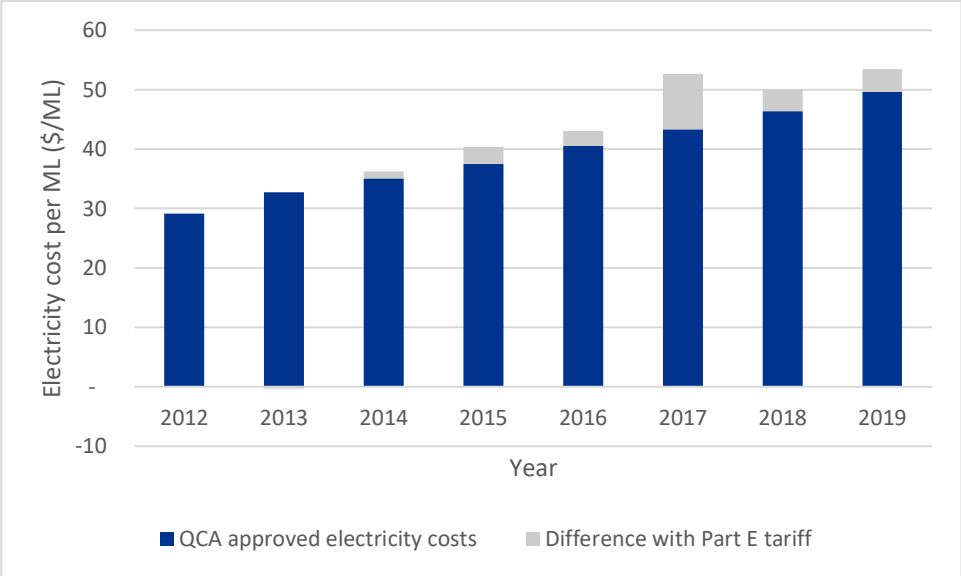
Year	2012	2013	2014	2015	2016	2017	2018	2019
QCA approved electricity costs								
Fixed	-	-	-	-	-	-	-	-
Variable	29.12	32.76	35.05	37.51	40.51	43.34	46.38	49.62
Total	**29.12**	**32.76**	**35.05**	**37.51**	**40.51**	**43.34**	**46.38**	**49.62**
Actual electricity costs								
Fixed	0.90	0.89	0.51	1.10	0.97	1.01	7.03	7.13
Variable	28.22	31.48	35.11	39.16	41.84	51.34	48.65	51.90
Total	**29.12**	**32.44**	**36.14**	**40.25**	**42.82**	**52.35**	**55.68**	**59.02**
Electricity costs with Part E tariffs								
Fixed	0.9	1.01	1.08	1.16	1.25	1.34	1.43	1.53
Variable	28.22	31.48	35.11	39.16	41.84	51.34	48.65	51.90
Total	**29.12**	**32.49**	**36.19**	**40.32**	**43.09**	**52.68**	**50.08**	**53.43**

The difference between the QCA approved costs and the costs with a Part E tariff are shown in the table and graph below.

Table 3 2: Difference between QCA approved and Tariff E electricity costs ($/ML)

Year	2012	2013	2014	2015	2016	2017	2018	2019
QCA approved electricity costs	29.12	32.76	35.05	37.51	40.51	43.34	46.38	49.62
Electricity costs with Part E tariffs	29.12	32.49	36.19	40.32	43.09	52.68	50.08	53.43
Difference	**-**	**-0.27**	**1.14**	**2.81**	**2.59**	**9.34**	**3.71**	**3.81**
Difference (%)	**0.00%**	**-0.83%**	**3.25%**	**7.50%**	**6.38%**	**21.54%**	**7.99%**	**7.67%**

Figure 3.4: Difference between QCA approved and Tariff E electricity costs



3.2.1.5 Implementation with declared prices and mechanisms to retain regulatory oversight

There is precedent for Queensland Government declared charges to be defined as formulas when referring to uncontrollable cost changes in the future, such as escalation.

For example, Economic Development Queensland (EDQ) provides a formula for annual escalation of infrastructure charges according to the Queensland Roads and Bridges Construction Price Index, which is outside the government's control[9].

Part E could be implemented as a simple formula passing through variable electricity costs, e.g.:

$$Part\ E = \frac{x + y}{z}$$

Where:

$x = SunWater's\ usage\ electricity\ costs\ for\ the\ Bundaberg\ Distribution\ Scheme\ between\ Date\ X\ and\ Date\ Y$

$y = SunWater's\ demand\ electricity\ costs\ for\ the\ Bundaberg\ Distribution\ Scheme\ between\ Date\ X\ and\ Date\ Y$

$z = SunWater's\ water\ deliveries\ for\ the\ Bundaberg\ Distribution\ Scheme\ between\ Date\ X\ and\ Date\ Y$

3.2.1.6 Cost-pass through in Ministerial Direction

The Ministerial Direction states concerning cost recovery in Paragraph 2.1:

> (a) Subject to paragraphs C(1.1), C(1.3) and C(1.7) the following costs are to be recovered over the price path period:
>
> > i. prudent and efficient operational, maintenance and administrative costs (for clarity, this may include an end-of-period adjustment relating to historical costs that were unforeseen and unable to be managed, on the basis of changing market conditions for inputs or the result of regulatory imposts, and in accordance with the Authority's recommendations from its May 2012 and April 2013 reports)

The QCA, in its 2012 to 2017 Price Review:

[9] https://www.dsdmip.qld.gov.au/resources/guideline/pda/infrastructure-funding-framework-nov-2018.pdf

Whether it is appropriate to approve a pass through or an automatic pass through in the future, within the 2012-17 regulatory period will depend upon consideration of the following criteria:

(i) whether the impact of the change in costs on either the service provider or the customer is material;

(ii) whether the change in costs could have been anticipated and thus managed or avoided by the service provider; and

(iii) the extent to which allowing recovery of unanticipated costs would reduce incentives to pursue efficiency;

We consider the proposed Part E tariff fulfils the requirements of the QCA, as:

(i) The potential price impacts are material. The maximum difference over the previous price period was 11.6%, two thirds greater than the general rate of electricity escalation of 7%. However, the difference is not too significant so that customers are adversely affected.

(ii) The changes in electricity prices were not anticipated during the 2012 to 2017 price review, including:

- Not anticipating lower rises and then falls in electricity tariffs
- Not anticipating the repeal of the carbon pricing scheme.

(iii) The proposed mechanism will maintain regulatory oversight, through scrutiny of fixed cost assumptions and control of annual tariffs.

Recommendation

BRIG recommends a quarterly cost reflective variable electricity charge as a Part E tariff.

3.3 Implementation

We acknowledge that there may be implementation issues. However, we consider that the benefits of our proposal justify investigating the implementation issues.

- The availability of real time information for customers considering ordering, including water use in the current quarter, by distribution sub-system. This will allow customers to assess whether they will be likely to incur a large volumetric charge due to low overall water us but high demand. If there are demand tariffs, customers will need to know what the highest demand has been in the month, and whether their use will trigger a large demand charge.
- Rapid and regular meter reading would be required to provide both the information for billing as well as the information for regular customer updates.
- Sending customers' bills may be slightly delayed. This may increase the need for a working capital allowance.