Supplementary submission

QCA review of irrigation prices

Pricing of distribution losses

March 2010

The Queensland Competition Authority (QCA) is currently investigating irrigation prices to apply in 22 bulk water schemes and 8 distribution systems owned by SunWater. The terms of reference for the QCA's investigation are set out in a Ministerial Referral Notice (the Referral Notice).

SunWater submitted network service plans (NSPs) to the QCA in January 2011 which presented SunWater's expenditure proposals. In these NSPs, SunWater noted that expenditure forecasts did not include bulk water costs to distribution losses. Simply put, it was not possible to include an allowance for bulk water costs given bulk water charges had yet to be determined.

Nonetheless, SunWater's position remains that water access entitlements (WAEs) held for distribution losses should be treated no differently to other WAEs when calculating bulk water charges. In turn, SunWater, as owner of the distribution network should be able to recover the proportion of bulk water costs apportioned to it's WAE s held for distribution losses from users of the distribution network, as these WAE are a necessary input cost to providing the distribution service.

This is a supplementary submission to the QCA in relation to how bulk water prices should be levied against distribution losses, and how the costs of distribution losses should then be recovered from customers. This submission is structured as follows:

- Section 1 sets out the reason that WAEs are held for distribution losses;
- Section 2 provides an overview of distribution losses held by SunWater, and sets out how those losses were determined;
- Section 3 discusses the rationale for assigning bulk water costs to distribution losses, and then recovering the costs of the distribution losses from customers of the distribution system;
- Section 4 examines the efficiency issues for the amount of distribution losses held;
- Section 5 addresses the applicable bulk water costs (charges) for distribution loss WAE; and
- Section 6 presents a conclusion.

1. Purpose of WAE held for distribution losses

In SunWater's distribution systems, end users hold their own individual WAEs[1].

Conceptually, a distribution system customer's WAE is located at the river, or more precisely at the location of the works used to divert water. The owner of the distribution system is responsible for taking the water available to that customer, at the pump station, and transporting it to their offtake. That is, if a customer holds a WAE for 100ML, then SunWater must be able to divert this 100ML at the river and deliver that 100ML at the customer's offtake.[2]

In order to provide this service, SunWater (as the owner of the distribution system) must hold WAEs for the losses incurred in transporting the water to the customer's offtake. These losses arise from a range of operational factors including, for example:

- pipe leakage;
- channel or balancing storage seepage and evaporation losses; and
- system losses resulting from distribution network overflows (e.g. due to ordered water being delivered but not taken) or operational maintenance shutdowns (which may require parts of the channel system to be 'drained' and then re-filled).

SunWater must be able to account for all diversions made against all WAE, including those held by customers and for distribution losses. This is a compliance requirement which is reported under the Resource Operations Plan and Resource Operations Licence.

2. SunWater's distribution losses

SunWater holds WAEs for distribution losses in all eight distribution networks servicing irrigators, as well as for industrial pipelines. These distribution loss WAEs are defined separately in each Resource Operations Plan as they are assigned a specific purpose of "distribution loss".

SunWater holds a mixture of high and medium priority distribution loss WAE, as indicated in the table below.

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1 This contrasts to distribution systems in New South Wales and Western Australia, where the network owner has historically also held all WAE. The ACCC has recently recommended changes that result in customers being able to 'transform' their contractual or other rights with the distribution owner into a formal WAE held by the individual customers, which can be traded. Customers in SunWater schemes already have this right as they own the WAE.

2 Subject to the water sharing rules that apply to that 100ML of WAE.

Table 1. Summary of SunWater's distribution losses

Distribution Losses	Medium Total	High Total	Total
Bowen Broken Rivers (for industrial pipeline)	0	494	494
Boyne River and Tarong (industrial pipeline)	0	1,620	1,620
Bundaberg (irrigation distribution system)	25,440	16,080	41,520
Burdekin Haughton (irrigation distribution system)	190,477	16,260	206,737
Dawson Valley (irrigation distribution system)	3,405	600	4,005
Eton (irrigation distribution system)	6,295	3,089	9,384
Lower Fitzroy (industrial pipeline)	0	1,275	1,275
Mareeba Dimbulah (irrigation distribution system)	37,000	8,000	45,000
Mary River (irrigation distribution system)	4,588	324	4,912
Nogoa Mackenzie (irrigation distribution system & industrial pipelines)	22,490	7,153	29,643
St George (irrigation distribution system)	6,701	3,000	9,701

Distribution loss volumes were initially established prior to the corporatisation of SunWater through the development of an "Interim Licence to Operate" for each Water Supply Scheme[3]. Upon corporatisation of SunWater in September 2000, these volumes were confirmed within an Interim Resource Operations Licence (IROL) for each scheme and created as Interim Water Allocations (IWA) with the purpose of 'distribution losses' on the Government's Water Allocation Register.

Since then, the distribution loss volumes have progressively been confirmed by the resource regulator through the water resource planning and resource operations planning processes which have converted the IWAs into water allocations in each Water Supply Scheme.

An important consideration for the resource regulator when developing Water Resource Plans and Resource Operations Plans was to avoid granting excessive WAEs for distribution losses, as this would affect the performance of other WAEs in the bulk water scheme. At the same time, it was imperative that the WAEs for losses did not put SunWater in a position where it was unable to supply customers with their WAEs due to insufficient water to cover operational losses within distribution systems.

[3] Prior to these reforms (which were implemented through the Water Act 2000) there was no clear specification of the total WAE for a bulk water scheme. This meant that the owners of distribution systems were not accountable for managing river diversions and losses within an absolute limit. This meant that diversions in relation to losses were not controlled nor accounted for with any precision or rigor. It also meant that there was an absence of incentives for the owners of distribution systems to invest in network improvements to improve distribution efficiency.

SunWater has also sourced WAEs for industrial pipelines constructed since 2000, for example the Burdekin-Moranbah pipeline. It is important to distinguish between this situation, where SunWater was responsible for sourcing WAE for losses, compared to the process for pre-2000 distribution systems where WAEs for distribution losses were prescribed by the resource regulator for SunWater.

3. Distribution losses and pricing

The first issue for pricing is whether WAEs held for distribution losses should be assigned the costs of the bulk water scheme and 'incur' bulk water charges. SunWater's position remains that its WAEs should incur bulk water charges as these WAEs are, in essence, no different to other WAEs in each scheme.[4] This is consistent with the approach used for the 2006 irrigation price review where costs were assigned to SunWater's distribution loss WAE when determining lower bound reference tariffs for bulk water schemes. This is also consistent with SunWater's proposed approach for allocating costs to WAE within a scheme, where its own distribution loss WAEs was included in its calculations for apportioning costs to medium and high priority WAEs.

Indeed, if a new entrant were to develop their own distribution network and offer distribution services to customers, they would need to source a WAE for distribution losses. It would be a nonsense to suggest that those WAEs should not receive a bulk water charge on the basis of their use type, given the costs of servicing those WAEs will not have changed.

Accordingly, assigning costs (and bulk water charges) to WAEs held for distribution loss should be uncontroversial.

The second issue is then whether SunWater, as owner of the distribution network, should be allowed to recover the costs of its WAE held for losses from customers in the distribution system. The costs of holding a WAE for distribution loss should be considered an operating cost in the same way as other input costs required to provide the service.

In urban networks the owner of the reticulation system must be able to recover their bulk water costs associated with losses (often termed non-revenue water). For example, this cost was provided for in the QCA's information requirements for distribution-retail businesses in South East Queensland. [5] Also, where irrigation distribution systems are owned separately to the bulk water assets, the owner of the system incurs bulk water costs for their distribution losses which must be recovered

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4 Apart from the constraints for trading those distribution loss WAEs. SunWater has also made separate submissions to the QCA in relation to the treatment of 'free' WAE, where there remains a case to continue to price these WAE on a different basis.

5 Queensland Competition Authority. *SEQ Interim Price Monitoring. Guideline for Templates 2010/11* (May 2010). P15

from the customer base (eg Murray Irrigation, Murrumbidgee Irrigation and Coleambally Irrigation in NSW).

In closing, distribution loss WAE are a necessary input to providing the distribution service, and the costs relating to those WAE (reflected in the applicable bulk water charges (or share of bulk water costs) should be recovered in customer prices.

4. Efficiency

While distribution loss WAE are a necessary and legitimate input to providing distribution services, SunWater anticipates that the Authority will consider whether SunWater's holding of distribution loss WAE is efficient, or whether the service could be provide using less distribution loss WAE, and consequently at lower cost.

The type and amount of WAE procured and held by SunWater would ideally reflect the least-cost portfolio of rights to meet SunWater's delivery obligations to customers. This package of rights could include a mix of:

- long-term rights, including high and medium priority WAE; and
- purchases of water rights, as needed, through the temporary transfer market.

In considering such a portfolio it is important to note that WAE held for distribution losses are subject to the same restrictions (water sharing rules) as all other WAE. For example, when the announced allocation for medium priority WAE is 10%, this restriction also applies to medium priority distribution loss WAE. This means that during times of drought, SunWater's holdings of water for distribution loss are diminished. It also means that options to procure additional water, particularly in times of drought, are limited as there will be less water available for trade. Accordingly, SunWater cannot rely on temporary markets to secure distribution loss WAE (although this may be the only option available to it when it faces a shortage). For clarity, SunWater has not made any allowances to procure additional water for distribution losses in its expenditure forecasts in various NSPs.

The amount of WAEs required for distribution loss will depend upon the distribution efficiencies of each system. Improvements in distribution efficiencies will of course require a smaller amount of WAE for losses. SunWater has published its distribution losses for each system as part of national performance benchmarking, published by the National Water Commission (NWC).[6] Distribution losses are very difficult to benchmark between individual distribution systems, as they will depend on a range of site-specific factors including:

- the extent of open channels versus closes pipelines in the system;
- the period over which water is delivered – for example SunWater supplies water all year whereas other service providers only provide services during a

[6] National Water Commission. *National Performance Report 2008-09. Rural Water Service Providers*. (April 2010)

defined irrigation season. This occurs due to seasonal factors and the types of crops grown in each area. In general, concentrating supply during certain periods will improve distribution efficiencies;

- the age and type of infrastructure involved;
- timing and pattern of customer demand; and
- the type of control systems designed for the system (eg upstream or downstream control) and the extent to which the system design provided for 'overflows' to occur;

However, regardless of the water delivery efficiency achieved, SunWater's holdings of distribution loss WAEs are outside of its control, given this was determined by the resource regulator. Moreover, the conditions attached to these WAEs constrain SunWater's ability to reduce or trade those WAE, in the event that opportunities arise to manage the system with lower losses. Any proposal by SunWater to convert its distribution loss WAE to a tradeable entitlement must receive approval by the resource regulator.

Furthermore, it is SunWater's understanding that it would not be able to convert distribution loss WAE unless it could demonstrate it had invested in measures to improve distribution efficiencies. This was the case in the Emerald system, where SunWater invested in channel lining to reduce losses, and the resource regulator subsequently approved the conversion of an amount of distribution loss WAE to the purpose of 'any', thereby enabling it to be traded. SunWater has not proposed any investments in improvements in distribution efficiencies in its NSPs, and furthermore it would expect that any such investments should not be recovered in irrigator prices. Rather, these investments should be considered in a commercial basis, and proceed where the revenues from the trade of converted WAE would exceed the cost of the distribution efficiency measures.

SunWater notes that the Referral Notice to the QCA requires that the Authority must recommend appropriate regulatory arrangements to manage the risks associated with the recoverable costs that are outside SunWater's control. SunWater does not propose that specific regulatory arrangements (such as price review triggers) are required in relation to distribution losses, although there is a case for a review trigger where SunWater is forced to procure additional water for distribution losses, despite operating the system efficiently.

Rather SunWater proposes that tariffs in distribution systems are set to enable it to recover the bulk water costs (charges) applicable to its current holdings of distribution loss WAE, on the basis that it this amount of WAE was prescribed for SunWater by the resource regulator, having regard to distribution efficiencies and the legitimate needs of SunWater to hold sufficient WAE to meet customer demands. The QCA should therefore accept the amount of distribution loss WAE prescribed for SunWater by the resource regulator, in the same way it would accept other conditions or requirements placed upon the business by another regulator.

Moreover, the QCA should acknowledge that the amount of distribution loss WAE held by SunWater is a matter outside its control, and should allow for the costs relating to those WAE to be recovered.

The following section discusses how these bulk water costs (charges) should be derived.

5. Determining bulk water charges applicable to distribution losses

Ordinarily, the bulk water charges for distribution losses would be no different to the bulk water charges for water taken to supply at customers' offtakes, given distribution loss WAEs have no different cost characteristics than any other WAE in a bulk water scheme. [7]

The Referral Notice requires the Authority to develop and recommend irrigation prices that allow SunWater to recover the efficient lower bound costs of supply (being the operational, maintenance and administrative costs and a renewals annuity). Where prices already recover lower bound costs, prices are to be maintained in real terms.

In schemes where bulk water prices must increase to recover lower bound costs, then SunWater submits that those prices should apply to its distribution loss WAE, and added to the revenue requirement for the distribution system.[8] Distribution charges would then be set to recover this revenue requirement or otherwise be maintained in real terms, in accordance with the requirements of the Referral Notice.

In some bulk water schemes, real price increases may not be needed and the bulk water charges payable by irrigators may be sufficient to recover the efficient lower bound costs. For example, the existing bulk water price may be $10/ML compared to the price required to recover the minimum lower bound costs at $9/ML. The question then arises – which bulk water charge should apply to distribution loss WAE?

SunWater submits that further price discrimination between use types (ie irrigation, distribution loss, urban/industrial users) should be avoided, on the basis that having multiple prices for the same service will ultimately lead to inefficient resource use decisions and additional administrative complexity and cost. Accordingly, distribution loss WAE held for servicing irrigation customers should attract the same bulk water charges as also paid by those irrigation users. In the example above, the bulk water charge of $10/ML would apply to medium priority distribution loss WAE, rather than the $9/ML.

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7 Apart from those differences described in SunWater's other submissions to the QCA in relation to differential pricing between high and medium priority WAE.

8 In doing so, SunWater has interpreted the Direction Notice broadly to mean that no return on assets should apply to its own distribution loss WAE (to the extent they supply the irrigation sector) as the costs of holding those WAE are recovered from irrigators.

Conversely, it is also conceivable that bulk water prices need to increase, and could be subject to a price path (as set out in the Referral Notice). SunWater accepts that, in such circumstances, the same prices should apply to distribution loss WAE as to bulk water prices for irrigators. This would mean that distribution loss WAE would also receive any price path charge, where applicable. This approach is consistent with SunWater's position above, minimising the number of prices applying simply due to the use of the WAE in question.

It is also necessary to determine a lower bound tariff for high priority WAE, given SunWater also holds high priority distribution loss WAE. Under SunWater's tariff proposal[9], high priority tariffs will differ to medium priority tariffs to the extent that capital costs are allocated differently, using the hydrologic utilisation factor.

6. Conclusion

SunWater holds WAE for distribution losses in each system. These WAE were set for SunWater as a result of the water reform process, and SunWater is constrained in how it deals with these WAE, including reducing its holdings of distribution loss WAE. Accordingly, SunWater's holding of distribution loss WAEs arise from an external regulatory requirement and its dealings with that WAE are also subject to regulatory constraints.

SunWater has not purchased additional WAE for distribution losses, nor has it included any costs for additional purchases of water for distribution loss within forecast costs in its NSPs.

It is appropriate for medium priority distribution loss WAEs to be assigned the same bulk water charges that apply to the irrigation sector generally, in each scheme. Charges for high priority distribution loss WAE should be determined consistent with the basis for calculating medium priority WAE, including the apportionment of capital and operating costs to each priority group.

The aggregate cost of these bulk water charges should be incorporated into the revenue requirement for each distribution system, and recovered through distribution charges, on the basis that the WAE held are a necessary input cost to the system.

The amount of distribution loss WAE held by SunWater is determined by the resource regulator, with any reductions to that amount subject to separate approval. Hence these costs arise from an external regulatory requirement and are outside of SunWater's control. The costs of these distribution loss WAE should therefore be recovered in full through appropriate pricing arrangements in order to satisfy the the requirements of the Referral Notice. This is best achieved by assigning a bulk water charge to those distribution loss WAE (including the same charge that applies to

[9] Refer to SunWater's separate submissions on this matter.

irrigators for medium priority WAE), and incorporating this cost into the revenue requirement for distribution systems and recovered in irrigator tariffs.