2020 Goulburn-Murray Water Price Review: Tariff Reform

A review of Goulburn-Murray Water's proposed tariff reform

A Final Report prepared for the Essential Services Commission

Friday 6 March 2020

AITHER

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Executive summary

Aither, and its subcontractor DG Consulting, were engaged by the Essential Services Commission (ESC) to undertake a review of the tariff reforms proposed by Goulburn-Murray Water (GMW) in its 2020 Pricing Submission. This report documents the outcomes of the review and will support the ESC in making its determination on the maximum prices that GMW can charge from 1 July 2020.

This report is one of two reports that Aither has been engaged by the ESC to deliver to assist in its 2020 Price Review of GMW. The other report is focused on a review of the operating and capital expenditure proposed by GMW. This report should be read in conjunction with the Operating and Capital Expenditure Review report.

The ESC has engaged Aither to provide it with high level advice on whether:

- The proposed shift to system-based pricing for Non-Water User Water Shares has been properly implemented
- Shepparton costs have reduced or moved closer to costs in the combined gravity irrigation districts.
- Proposed service point and metering charges are cost reflective, and
- Other minor changes to tariffs are reflective of underlying costs.

Approach to the review

The overall approach to delivering the tariff review involved four phases, as follows:

- **Initiation** – gathering initial documentation, and agreeing project methodology
- **Information discovery** – reviewing available information, developing and submitting further information requests, and undertaking meetings or interviews with GMW staff
- **Analysis and review** – completing analysis of information provided by GMW in support of the tariff reform being proposed, follow up information requests, and consolidation of findings across review elements
- **Reporting** – documenting the results of the analysis and review (this report).

The methodology was designed to assess the extent to which GMW's proposed tariff reforms align with and are underpinned by robust cost estimations.

The review was undertaken from November 2019 to March 2020, with visits to Tatura to meet with GMW staff in December 2019 and January 2020. In addition to GMW's public submission, we sought further information regarding the assumptions that underpinned the forecast expenditure. This included:

- Additional information identified by GMW in its pricing submission
- On-site interviews with GMW staff
- Three rounds of information requests, and
- Previous ESC Determinations and associated reports.

There was also regular communication with GMW staff throughout the review process to clarify information requests and the responses provided.

Gravity irrigation delivery tariffs

Post-2016, GMW has adopted a two-area gravity irrigation tariff structure, in which the Shepparton irrigation district pays separate delivery fees to the five other irrigation districts within the Goulburn-Murray Irrigation District (GMID). GMW has proposed the establishment of uniform irrigation delivery fees across the GMID, which would integrate Shepparton's delivery charges with the other districts. In the Pricing Submission, GMW cite similarity between Shepparton's delivery costs with the average delivery costs of the other districts currently under a uniform charge when compared to 2016. GMW's proposal also includes shifting the customers in the Broken Creek from the Murray Valley irrigation district to the Shepparton irrigation district.

GMW's cost allocation methodology

We reviewed GMW's method of recording/forecasting operating costs in the irrigation districts, including its treatment of direct costs and the allocation of shared costs to the districts. Following the outcome of the 2016 Price Review, GMW has reconsidered its categorisation of operating costs in the gravity irrigation districts. GMW's proposed uniform delivery charge in its 2020 Price Submission is now underpinned by a much larger proportion of operations costs directly charged to the districts relative to its justification for the uniform charge proposed in its 2016 Price Submission. While GMW still considers resources are becoming more centralised, it has direct charged many of those resources to the irrigation districts. Table 1 summarises GMW's cost allocation approach.

Table 1 GMW's 2020 Price Submission operating costs allocation approach

Operating costs directly costed to districts	Operating costs indirectly allocated to districts
Labour: directly charged to each district via timesheets. **Management overhead:** follows the direct costed labour (based on time sheets) to the districts for each management group. **Other accounts (Contracts, Materials, Plant, Vehicles etc.):** follows the labour charge or costed directly to the service based on purchase orders.	**Corporate overheads:** allocated based on the operating and capital costs in each district as a portion of the total GMW costs.

Source: GMW

The proportionate split of direct charged and allocated shared costs for GMW's latest 2019-20 forecast information can be seen in Table 2. This demonstrates that a much higher proportion of costs are being directly allocated to districts than under previous approaches.

Table 2 GMW's gravity irrigation operating cost structure 2019-20 ($2019-20, $million)

Gravity irrigation operating cost	Direct costs charged to districts	Indirect costs allocated to districts
Labour	13.4	-
Management overhead	7.1	-
Other accounts (Contracts, Materials, Plant, Vehicles etc.)	15.2	-
Corporate overheads	-	13.2
Total	**35.7**	**13.2**
Percentage of total costs	**73%**	**27%**

Source: Aither – Based on data supplied by GMW

Note: Numbers have been rounded

Aither considers GMW's operating cost allocation based on higher proportion of direct charging to the districts is more transparent than the approach used in 2016 and more reflective of how costs are incurred to service each district.

Operating cost to service analysis

Aither conducted an operating cost to serve per delivery share comparison of the operating costs in the Shepparton Irrigation district with those in the five irrigation districts currently under the combined uniform charge. The analysis also included an assessment of the operating cost impact from the shift of the Broken Creek. The result of the analysis is shown in Table 3.

Table 3 Operating cost to serve comparison ($2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24
Broken Creek remains in Murray Valley					
Five combined district operating cost per delivery share	$2,267	$1,939	$1,814	$1,833	$1,853
Shepparton operating cost per delivery share	$3,276	$2,387	$2,234	$2,307	$2,359
Shepparton's higher operating cost per DS %	45%	23%	23%	26%	27%
Broken Creek shifts to Shepparton					
Five combined district operating cost per delivery share	$2,267	$1,961	$1,833	$1,853	$1,874
Shepparton operating cost per delivery share	$3,276	$2,183	$2,049	$2,111	$2,154
Shepparton's higher operating cost per DS %	45%	11%	12%	14%	15%

Source: Aither – Based on information provided by GMW

Based on our review of GMW's proposed changes to its gravity irrigation delivery tariffs:

- Our operating cost to serve analysis highlighted a significant reduction in Shepparton's operating cost to serve per delivery share from 2019-20 to 2020-21 relative to GMW's cost to serve per delivery share for the other five irrigation districts combined
- Shepparton's operating costs to serve per delivery share in 2020-21 is 11 per cent higher than the other five irrigation districts combined when Broken Creek customers are shifted from Murray Valley to Shepparton.
- If Broken Creek customers remain in the Murray Valley, Shepparton's operating costs to serve per delivery share in 2020-21 is 23 per cent higher than the operating cost to service per delivery share in the combined five irrigation districts.
- The addition of Broken Creek customers to the Shepparton district will spread Shepparton's costs across a larger delivery share base with limited additional operations costs. This has the inverse impact on the average cost base per delivery share of the other five districts currently captured under a uniform charge – increasing the cost per customer in those districts.

Storage tariffs

Currently Non-Water User Water Shares and Bulk Water Entitlements are charged a basin price for water entitlement storage, whilst Water User Water Shares are charged a system price. GMW has proposed system pricing for all retail Water Share holders, which would move Non-Water Users from basin pricing to system pricing. GMW has not proposed changes to storage fees paid by Bulk Entitlement Holders in its pricing submission, however GMW has stated it is continuing discussions on transitioning bulk charges to a system price with its Bulk Entitlement Holders.

Aither has undertaken a high-level review on whether the proposed shift to system-based pricing for Non-Water User Water Shares has been properly implemented by reviewing GMW's underlying weighted average calculation of the Murray and Goulburn system charges.

Our review of GMW's model calculating the weighted average system charge concluded:

- The appropriate basins were included in the calculation for the Murray and Goulburn systems.
- Only High Reliability Water Shares were included in the weighted average High Reliability system calculations and Low Reliability Water Shares were included in the weighted average Low Reliability system calculation.
- The number of Non-Water User entitlements for each basin used in the weighted average system calculation reflected the quantities included in GMW's Price Submission financial template, and
- The weighted average calculation method of the system charges is appropriate.

Service point tariffs

GMW has proposed several changes to the service point fee structure across multiple services, including applying charges more consistently across services. Table 4 shows GMW's proposed changes in detail.

Table 4 Detail of GMW's proposed service point reform

Proposed reform	GMID	Pumped Irrigation	Pipeline Districts	Diversions
Include a share of corporate overhead costs in Service Point Fees (SPF). Phase in over four years from 2020-21.	✔	✔	✔	✔
Apply SPFs to all service points shifting from a charge only applied per additional service points after the first one. Phase in over four years from 2020-21.		✔	✔	
Apply service point fees based on service point type, aligning structure and charges with GMID.		✔		
Amalgamated fees for Local Read and Remote Read (local operate) service points into a single Local Operate SPF. Phase in over four years from 2020-21.	✔			
Remove SCADA costs from Remote Read Local Operate SPF and allocate across GMID delivery charge. Full reduction made from 2020-21.	✔			
Metered SPF to increase in line with amalgamated Local Operate GMID SPF.				✔

Source: Aither – Based on GMW's Price Submission

Aither notes that it was difficult to assess the underlying costs for the service point fees based on the information provided by GMW. While a 15-year cost profile for GMID service points was provided, adjustments were made to the costs with limited justification as to the reasoning and level of those adjustments. This 15-year GMID cost profile was also used as the basis for the underlying costs of the pumped irrigation district service points. Some cost components of the diversions and pipeline water district points were also based on the GMID 15 year cost profile, however further adjustments were also made to these costs. Aither has not validated the adjustments, and therefore cannot confirm the accuracy of GMW's service point costing information.

GMW has proposed to amalgamate the charges for GMID Local Read Local Operate (LR) and Remote Read Local Operate (RR) service points on the basis that they have similar underlying costs. We note that following the adjustments that GMW made to the estimated costs under the 15-year cost profile of GMID LR and RR service points, there remains a 30 per cent cost differential.

Other tariff reforms

Aither undertook a high-level check of the modelling underpinning GMW's proposed Customer Service Fee and Water Register Fee. We assessed GMW's cost calculations that underpinned the fees. Based on our high-level assessment of these calculations, we consider the charge to be appropriate and based on reasonable calculations and assumptions.

GMW has proposed a tariff structure for the new Mitiamo pipeline that is to be constructed in the upcoming regulatory period. The capital expenditure for this project has been reviewed as part of Aither's expenditure review for the ESC and was considered appropriate. The calculation of the tariff is based on tariffs for other similar pipelines that are operated by GMW. Aither undertook a high-level review of these calculations and considered that the tariff proposed by GMW to be reasonable based on the cost estimates for the pipeline.

1. Introduction

1.1. Overview

Aither, and its subcontractor DG Consulting, were engaged by the Essential Services Commission (ESC) to undertake a review of proposed future capital expenditure, operating expenditure and tariff reforms for Goulburn-Murray Water (GMW). This report documents the outcomes of the tariff reform component of the review and will support the ESC in the determination of tariff reforms to be implemented by GMW from 1 July 2020.

1.1.1. Role of the ESC

Established in 2001, the ESC is an independent regulator of Victoria's energy, water and transport sectors. Under the *Essential Services Commission Act (2001)*, the ESC is responsible for delivering price determinations, producing compliance assessments, and applying enforcement actions.

In order to meet its responsibilities, the ESC has various review or assessment processes associated with price determinations. One such process is to independently review proposed expenditure and tariff reform, which helps to determine whether utilities have incurred or are proposing efficient costs and tariff structures. Independent reviews are an input to allow the ESC to determine tariff structures and maximum prices.

The Commonwealth is responsible for the regulation of prices charged by GMW for infrastructure related services under the Commonwealth Water Act 2007. The ESC holds accreditation from the Australian Competition and Consumer Commission ACCC, who is responsible for regulation of GMW's prices under the Water Charge (Infrastructure) Rules (WCIR), to regulate GMW's infrastructure related service charges. This accreditation will be held until 2022.

The ESC is also required under the Water Industry Regulatory Order 2014 (WIRO) to regulate charges for non-infrastructure related services including groundwater, unregulated surface water diversions and some miscellaneous services.

1.1.2. About Goulburn-Murray Water

GMW is a statutory corporation of the Victorian Government and provides water related services to 21,000 customers in northern Victoria. Primary functions of GMW include provision of storage and delivery services to customers and management of regulated and unregulated river systems. GMW's services, projects and activities cover 68,000 square kilometres, encompassing seven northern Victorian catchment areas from the Upper Murray Basin in the east to the Loddon Basin in the west. Significant service segments include irrigation, domestic and stock, and bulk water to urban and rural water supplies.

GMW also operate salinity mitigation works in the Murray River, manage groundwater use, maintain recreational infrastructure, and are responsible for making the seasonal determination for northern Victorian water systems.

The $2 billion Connections Project, delivered by GMW, is Australia's largest irrigation modernisation project, and includes replacement of Dethridge wheels and manual gate channel systems with automatic systems. The Project began with the Northern Victoria Irrigation Renewal Project, which is

forecasted to conclude by late 2020. In addition to creating water savings for the environment, the Project is expected to deliver cost reductions and operational efficiencies for irrigators throughout the GMID.

GMW has experienced increasing costs of service over the last 20 years. In response to rising operating costs, GMW is currently undergoing significant change in order to identify and create efficiencies across the organisation. These changes include:

- transition to a new organisational structure
- implementation of a transformation action plan
- revision of approaches to business and workforce efficacy programs.

GMW has also used customer input and other stakeholder engagement to revise their service standards and develop the tariff reforms discussed in this report.

1.1.3. 2016 tariff reform review and pricing determination

In January 2016, Indec completed an independent review of GMW's operating and capital expenditure and tariff structure on behalf of the ESC. The review was an input into the ESC's 2016 Price Determination for GMW for the regulatory period from 1 July 2016. The tariff component of Indec's review investigated GMW's proposed reforms to gravity irrigation fees and diversion fees.

Prior to 2016, GMW charged a distinct Infrastructure Access Fee and Infrastructure Use Fee for gravity irrigation services to each of its six irrigation districts. In the 2016 Pricing Submission, GMW proposed a uniform price across each district, citing benefits to customers and reduced labour costs from streamlined pricing. The ESC determined that this proposal did not align with the ACCC's principles, as the costs of irrigation services in the Shepparton district were significantly higher than the costs of these services in the other five districts (where costs were relatively similar). Instead, the ESC determined a 5:1 tariff arrangement in which the five districts excluding Shepparton would move to a uniform price, whilst the Shepparton district would continue to be charged a separate, cost-reflective fee.

The 2016 Pricing Submission also included reforms to diversion fees, which began implementation in 2014-15. These reforms reduced the number of pricing groups for diversion fees from ten to four, and separated service point fees for metered and unmetered service points to enhance cost reflectivity. This proposal was determined to be appropriate by the ESC due to alignment with the 'user pays' principle, however changes were made to the pricing transition schedule to reduce short-term price volatility for small customers.

1.1.4. GMW's 2020 proposed tariff reform

The ESC is conducting a review of GMW's tariff structure and prices for services provided to customers from 1 July 2020. The infrastructure related tariff reform component of ESC's review will be developed in alignment with the ACCC's principles for assessing tariffs and will determine tariff structures for GMW for the upcoming regulatory period (2020-2024). Non-infrastructure related tariffs for groundwater, unregulated surface water diversions and some miscellaneous services are subject to review under the Water Industry Regulatory Order 2014 (WIRO).

GMW's 2020 Pricing Submission proposes several tariff reforms, predominantly focused on simplification of pricing structures where services provided to customers are functionally similar. The most significant proposed changes are summarised in Table 5.

Table 5 Summary of proposed tariff reforms in GMW's 2020 Pricing Submission

Current tariff structure	Summary of proposed change	GMW Rationale
Irrigation delivery fees: Separate irrigation delivery fees are paid dependent on whether irrigated land is within the Shepparton district or one of the other five gravity irrigation districts.	Similar to 2016, GMW has proposed the establishment of uniform irrigation delivery fees across the GMID, including Shepparton.	The difference in cost of delivery between Shepparton and the rest of the districts has decreased.
Storage fees: Storage fees paid by Water Share holders are dependent on their status as a 'Water User' (water held is associated with land) or a 'Non-Water User' (water is not associated with land).	GMW has proposed that all retail customers pay the same storage fees (on a system basis), regardless of their water entitlement's association with land. Bulk Entitlement holders will continue to be subject to basin pricing.	'Non-Water Users' receive the same service as 'Water Users' but pay less.
Service point fees: In pumped irrigation districts and piped water districts, only additional service points are charged a separate service point fee. In the GMID, service point fees differentiate between Local Read Local Operate and Remote Read Local Operate service points.	GMW has proposed a fee for each service point rather than per additional service point in pumped irrigation districts and piped water districts, an amalgamated fee for Local Read Local Operate and Remote Read Local Operate service points in the GMID, and the inclusion of overhead costs into all service point fees. Diversions metered service point fee is proposed to be charged at the same level as the proposed amalgamated GMID Local Read Local Operate and Remote Read Local Operate fee.	Simplification of the current fees that are too complex and not reflective of the level of service provided, and bringing greater consistency to service point fees, Remote Read Local Operate service points provide no additional service to customers over a Local Read Local Operate. Proposed changes will also improve cost reflectivity.

GMW has also proposed other tariff reforms including changes to the customer fee and water register fee.

1.2. Report objectives and scope

This report is one of two reports that Aither has been engaged by the ESC to deliver to assist in its 2020 Price Review of GMW. The other report is focused on a review of the operating and capital

expenditure proposed by GMW. This report should be read in conjunction with the Operating and Capital Expenditure Review report.

The ESC has engaged Aither to provide it with high level advice on whether:

- the proposed shift to system-based pricing for Non-Water User Water Shares has been properly implemented
- Shepparton costs have reduced or moved closer to costs in the combined gravity irrigation districts.
- Proposed service point and metering cost charges are cost reflective, and
- Other minor changes to tariffs are reflective of underlying costs.

As part of this review, Aither has not undertaken an assessment of the proposed changes to the tariff structure against ACCC or WIRO pricing principles. The focus of the review is to better understand and verify the underlying information that GMW has used to justify the proposed tariff structure changes. This will assist the ESC in its assessment as to whether the proposed tariff structures are consistent with ACCC or WIRO pricing principles.

1.3. Report outline

The report is broadly structured to align with the objectives and scope of work, in addition to further detailed requirements set by the ESC. Specifically:

- This **Section 1** provides background on the ESC and its role, that of GMW, and the objectives and scope of this review.
- **Section 2** outlines the methodology and associated considerations for the review.
- **Section 3** documents the analysis of GMW's proposed uniform gravity irrigation delivery charge
- **Section 4** documents the analysis of GMW's weighted-average system price calculation
- **Section 5** documents the analysis of GMW's proposed service point charge
- **Section 6** documents the analysis of GMW's other proposed minor tariff reforms

2. Review methodology

2.1. Overview

The overall approach to delivering the tariff review involved four phases, as follows:

- **Initiation** – gathering initial documentation, and identifying tariff reforms for review
- **Information discovery** – reviewing available information, developing and submitting further information requests, confirming the evaluation criteria and approach, finalising an overarching conceptual framework for tariff review, and undertaking meetings or interviews with GMW staff
- **Analysis and review** – completing analysis of information provided by GMW in support of the tariff reform being reviewed, follow up information requests, and consolidation of findings across review elements
- **Reporting** – documenting the results of the analysis and review (this report).

The methodology was designed to assess the extent to which GMW's proposed tariff reforms align with and are underpinned by robust cost estimations.

The review was undertaken from November 2019 to March 2020 with visits to Shepparton to meet with GMW staff in December 2019 and January 2020. The review was undertaken alongside a review of GMW's capital and operating expenditure, which is presented in a separate report.

2.2. Information sources

The major information sources that have informed the analysis include:

- the GMW Price Submission 2020-2024 to the ESC and the accompanying prescribed financial model
- meetings with GMW staff in Tatura and over the phone, and
- various documentation supplied by GMW.

3. Gravity irrigation delivery tariffs

3.1. Background

From their initial introduction in the early 20th century up until 1991, water entitlements in irrigation districts were attached to land and couldn't be transferred to another piece of land. Fixed charges were levied on water rights attached to land within a district to cover costs associated with water storage, and the fixed and variable costs associated with operating, maintaining and the renewal of the delivery network. Additional water entitlements over and above the water right volume, known as "sales", were available in some districts in high water availability seasons. Access to sales was based on the water rights attached to a property, and delivery of sales attracted an additional charge.

Permanent transfer of water rights was introduced in 1991. One of the downsides of trade was that if entitlements traded out of a district, the costs for the operation, maintenance and renewal of the network (which didn't change significantly) had to be recovered across the reduced water right base in the district, so prices for the remaining irrigators increased. These impacts highlighted the problems associated with grafting trade onto an administrative and financial management system designed around water being locked to land and not moving.

The 1980s and early 1990s were characterised by relatively high water availability, and the GMW revenue model at that time was built around delivery of significant volumes of the sales product. The onset of the Millennium Drought in the mid-1990s reduced the sales product availability and highlighted the risks around reliance on a significant variable revenue component when the underlying costs for the operation and maintenance of the distribution system were largely fixed.

The combination of these factors prompted a range of sweeping water reforms under the aegis of the National Water Initiative, which included the expansion and improvement of water trade and full separation of water from land. The Victorian government implemented the unbundling of water from land in 2007. This required significant changes to GMW's tariff structure.

Unbundling separated the bundled water rights into three components, with accompanying separation of the bundled water right tariffs:

- A Water Share, which was a right to a share of the water resources in a system. Water Shares attracted an entitlement storage fee, which was a fixed charge based on the volume of Water Shares. It covered the costs for operation, maintenance and renewal of the reservoirs and weirs that harvested and stored water entitlements.
- A delivery share, which was an entitlement to access the delivery capacity of the irrigation distribution network. Delivery shares were covered by a fixed charge (levied per ML/d of delivery share held) which largely reflected the fixed cost of providing the distribution network and a delivery charge (levied per ML of water delivered) to reflect the variable costs of system operations
- A water use licence authorised the application of water to land and managed the environmental impacts associated with water use. Apart from application/issue fees, there are no ongoing charges for water use licences.

Delivery shares were introduced on an interim basis across GMW's irrigation districts in 2006, and then on a permanent basis across all irrigation districts in northern Victoria as part of unbundling in 2007. The same basic structure for gravity irrigation tariffs has remained in place since unbundling, however a range of specific elements have been refined and revised in response to drivers including

the modernisation of the distribution network, and the need to rationalise and reduce the footprint of the network as water trade, climate change and recovery of water for the environment.

Until the mid-1990s, a common gravity irrigation price applied to all irrigation districts within the GMID. In the mid-1990s, prices were disaggregated into six separate irrigation district prices. The aim was to reflect the different service level (and costs) that existed across the GMID at that time, and to support customer involvement in and ownership of programs to achieving achieve significant productivity gains and cost reductions. The more recent modernisation and automation of a large portion of the network improved overall service standards and provided greater uniformity of service levels across GMID.

3.2. 2016 Price Review

In 2016 GMW proposed a shift from district-based pricing in the GMID to a uniform price. However, the ESC determined that the costs in Shepparton were significantly more than the rest of the GMID, therefore only approved a uniform price for the other five districts with Shepparton to remain on a separate price.

As part of the 2016 review, the ESC engaged Indec to undertake an independent review of GMW's operating and capital expenditure and tariff structure. Based on the findings of Indec's review, the ESC determined that this proposal did not align with the ACCC's principles, as the costs of irrigation services in the Shepparton district were significantly higher than the costs of these services in the other five districts (where costs were relatively similar). Instead, the ESC determined a 5:1 tariff arrangement in which the five districts excluding Shepparton would move to a uniform delivery price, whilst the Shepparton district would continue to be charged a distinct fee.

3.3. Modernisation and business transformation

Since the beginning of the Connections Project in 2012, GMW has undertaken a number of productivity, efficiency and cost reduction exercises that include the 2013 Blueprint cost saving, 2015-16 organisation re-structure and workforce review, the Transformation Program following the 2018 SAP Review and the new 2019-20 business structure.

The Connections Project has resulted in extensively automating, modernising and rationalising of the GMID.

While the Shepparton irrigation district channel system has been fully automated, the five other Irrigation districts continue to operate hybrid systems where the backbone channels have been automated and non-backbone channels that have been retained are still being manually operated.

Further information about GMW's business transformation and modernisation can be found in the Expenditure Report.

3.4. GMW's proposed tariff reform

GMW has proposed a common uniform delivery tariff structure for the GMID, shifting from its current two-area pricing model approved by the ESC in 2016. GMW's proposal aligns the Shepparton irrigation district delivery charge with the five other irrigation districts currently captured under a single uniform delivery charge.

GMW's submission acknowledges that the differential between Shepparton's costs in 2016 with those of the other irrigation districts was too great to support a fully uniform delivery charge at that time. However, GMW states the costs in Shepparton are now within 15 per cent of the average costs underpinning the uniform delivery charge currently covering the other five districts.

The proposal also specifies a change in the classification of customers serviced by the Broken Creek, shifting them and the associated costs and revenues from the Murray Valley district into the Shepparton district. GMW states the majority of the water supplied to the Broken Creek is via infrastructure in the Shepparton district, therefore the costs and revenues better align with the Shepparton district.

3.5. Approach to our assessment

The ESC requested Aither to provide a high-level review of the operating costs in the Shepparton irrigation district to identify if they have reduced or moved closer to the combined operating costs of the other gravity irrigation districts currently captured under a uniform delivery charge.

Aither's analysis will assist the ESC's review of GMW's proposed gravity tariff reform and its consistency with the regulatory framework and the ACCC's pricing principles.

Aither's review focused on undertaking a high-level assessment of the assumptions and costs underpinning GMW's statement in its pricing submission that:[1]

> *The cost differential between the cost of delivering water via the gravity network in Shepparton is comparable to the average cost across the other five districts.*

In order to assess the costs and assumptions behind GMW's statement, Aither undertook an operating cost to serve analysis of Shepparton and the combined five irrigation districts. This analysis included:

- Reviewing GMW's method of recording/forecasting operating costs in the irrigation districts, including its treatment of direct costs and the allocation of shared costs to the districts
- Comparison of the operating costs in Shepparton with those in the five districts currently under the combined charge
- Review of the drivers for Shepparton's relatively larger cost reduction
- Analysis of the cost impact of shifting customers in the Broken Creek to Shepparton.

[1] Goulburn-Murray Water (2019). *GMW Pricing Submission 2020-24*.

3.6. GMW's cost allocation methodology in the GMID

3.6.1. 2016 Price Review

At the time of the 2016 Price Review, GMW classified a significant proportion of its gravity irrigation system operating costs as centralised, rather than as costs directly attributable to individual irrigation districts. This classification was adopted despite each labour operations position recording activities undertaken in each district via time sheets, meaning the labour costs and related non-labour operating costs could have been directly charged to the districts.

GMW's 2016 classification of district and centralised labour costs is captured in Table 6. It can be seen that GMW considered staff working across more than one district were a centralised resource.

Table 6 GMW's 2016 Price Submission labour operations cost allocation

Labour operations	Allocation approach
Direct charge to district	Staff with time allocated to a single district are assumed district specific costs
Centralised and allocated	Staff budgeted over multiple areas (East, West & Central) or multiple districts (Shepparton, Murray Valley etc) are assumed centralised

Source: GMW supplied – IDF1.2 direct and allocated costs to districts revisited v2

Indec's review of the proposed tariff reform did not support GMW's treatment of labour operations costs, stating:[2]

> *The weakness of GMW's approach is that even though a position may incur labour costs in two districts, which is identified and recorded, the labour cost is allocated across all districts…Allocating district based costs should be avoided if reliable data exists that would enable the identification of how costs are incurred in the relevant district.*

Indec also reviewed the extent to which resources were used across multiple districts, concluding that:[3]

> *…district-based resources have limited capacity to work across more than two or three districts… district resources are not centralised but rather are pooled across some but not all districts.*

Indec noted that a more appropriate classification of a centralised resource covers:[4]

> *…any resource that does not operate directly in district and incurs labour costs across multiple districts without details on the labour costs incurred in each district.*

Following the assessment of GMW's cost information, Indec applied an alternative definition of district and centralised costs as shown by Table 7. This alternative approach shifted a larger proportion of

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2 Indec (2016). *2016-20 Review of Water Prices for Goulburn-Murray Water: Tariff Structure Proposals*. Essential Services Commission, p.9.

3 Ibid

4 Ibid

costs to directly charge the districts based on the availability of data capturing the labour costs incurred in each district.

Table 7 Alternative classification of operating cost allocation adopted by Indec in 2016

Labour operations	Allocation approach
Direct charge to district	District based staff with details available on labour costs in each district.
Centralised and allocated	Non-district based staff who undertake general activities which are not directly attributable to any district. District based staff who undertake general activities across multiple districts and do not record labour costs incurred in each district.

Source: Indec (2016). *2016-20 Review of Water Prices for Goulburn-Murray Water: Tariff Structure Proposals*. Essential Services Commission, p.10.

The comparison of the proportionate split of GMW's district and centralised costs is shown in Table 8. This reclassification of the operating expenditure by Indec resulted in the Shepparton irrigation district's operating costs per delivery share being materially higher than the other districts. This analysis ultimately informed the ESC's decision to not approve a uniform gravity irrigation delivery charge that included the Shepparton irrigation district.

Table 8 Comparison of GMW's 2015-16 operating costs under GMW's classification and Indec's classification in 2016

Classification method	Direct charge to district	Centralised and allocated
GMW	33%	67%
Indec approach	56%	44%

Source: Indec (2016). *2016-20 Review of Water Prices for Goulburn-Murray Water: Tariff Structure Proposals*. Essential Services Commission, p.10.

3.6.2. GMW's cost allocation methodology underpinning the 2020 Price Submission

Aither requested GMW to provide details on its methodology of allocating costs to its irrigation districts for its 2020 Price Submission and if the approach had changed from its cost allocation for the 2016 price review.

In our discussions, GMW staff stated that prior to modernisation, the management and resourcing in irrigation districts was somewhat stand-alone, however with modernisation there has been greater integration or resourcing with more centralised management. The changes to the business structure from modernisation formed the driver for GMW's costing approach put forward in its 2016 pricing submission, focusing on the greater centralisation of resources.

Following the outcome of the 2016 Price Review, GMW has reconsidered its categorisation of operating costs in the gravity irrigation districts. GMW's proposed uniform delivery charge in its 2020 Price Submission is now underpinned by a much larger proportion of operations costs directly charged to the districts relative to its justification for its uniform charge proposed in its 2016 Price Submission. While GMW still considers resources are becoming more centralised, it has direct

charged a large proportion of those resources to the irrigation districts based on labour hours from timesheets. In response to our queries on cost allocation to the irrigation districts, GMW stated:[5]

> *GMW's employees are grouped together in what are called Resource Centres. Each Resource Centre has a specific expertise, e.g. engineering, construction, operations, legal, policy, strategy, governance, finance, IT, etc…Most Resource Centres directly cost their expenditure (labour, materials, etc) directly to the specific Pricing Entity and jobs therein that they are "contracted" by the Service Managers to undertake…The benefit of this approach is that it allows clear ring-fencing of service provision and transparency and accountability of costs and prices, while allowing efficiency in resource inputs through development of specialisation within the business and economy of scale for each specialisation.*

This more granular direct costing approach used by GMW is more reflective of the approach adopted by Indec in the 2016 Price Review, however GMW's new approach also direct costs several of the head office functions to its services which was not undertaken by Indec in 2016. In its report from the 2016 Price Review, Indec noted that this greater level of granularity could be achieved, stating that:[6]

> *Some centralised resources located in the head office may incur labour costs in particular districts with details of the time spent in each district recorded in a timesheet. It is possible to classify these costs as district costs if a more granular approach is desired.*

GMW's costing approach underpinning the gravity districts in its 2020 Price Submission is outlined in Table 9. It can be seen that GMW direct charges the majority of its operations costs to the irrigation districts with the exception of corporate overhead costs which are allocated to each of GMW's services based on the proportionate share of the total operating and capital costs. In addition to this, GMW no longer allocates customer administration and billing related costs to the irrigation districts or other services it provides, instead ringfencing these costs and recovering them directly via the customer service charge.

Table 9 GMW's 2020 Price Submission operating costs allocation approach

Operating costs directly costed to districts	Operating costs indirectly allocated to districts
Labour: directly charged to each district via time sheets. **Management overhead:** follows the direct costed labour based on time sheets to the districts for each management group. **Other accounts (Contracts, Materials, Plant, Vehicles etc.):** follows the labour charge or costed directly to the service based on purchase orders.	**Corporate overheads:** allocated based on the operating and capital costs in each district as a portion of the total GMW costs.

Source: GMW

[5] Additional information provided by GMW in response to our requests

[6] Indec (2016). *2016-20 Review of Water Prices for Goulburn-Murray Water: Tariff Structure Proposals*. Essential Services Commission, p.11.

The proportionate split of direct charged and allocated shared costs for GMW's latest 2019-20 forecast information can be seen in Table 10. This demonstrates that a much higher proportion of costs are being directly allocated to districts than under previous approaches.

Aither reviewed the underlying labour hours to each district by individual labour position for GMW's latest 2019-20 year forecast labour operations costs in the GMID to confirm the direct costing approach of labour is being applied in accordance with GMW's descriptions.

Table 10 GMW's gravity irrigation operating cost structure 2019-20 ($2019-20, $million)

Gravity irrigation operating cost	Direct costs charged to districts	Indirect costs allocated to districts
Labour	13.4	-
Management overhead	7.1	-
Other accounts (Contracts, Materials, Plant, Vehicles etc.)	15.2	-
Corporate overheads	-	13.2
Total	**35.7**	**13.2**
Percentage of total costs	**73%**	**27%**

Source: Aither – Based on data supplied by GMW

Note: Numbers have been rounded

3.6.3. Operating cost structure over the 2020 regulatory period

Aither also requested GMW to provide a detailed forecast breakdown of labour hours for each district for each year of the 2020 regulatory period, however GMW was unable to provide the same granular breakdown of labour for the forecast years. GMW stated that as part of the transformation process it has assumed certain levels of labour cost savings in each district at a high-level, however these have not been applied to individual labour positions. GMW staff noted that while a bottom-up build is not available for individual labour positions within each district, they are committed to meeting the overall labour cost savings targets in each district.

GMW provided Aither with the forecast operations costs for the upcoming regulatory period down to a resource centre level, capturing how they are forecast to be direct charged to each of the gravity irrigation districts. While Aither is unable to confirm the individual labour positions within each of these resource centres, the information enabled us to assess GMW's forecast operating cost structure for the upcoming regulatory period. The annual split of direct charge and allocated operations costs to gravity irrigation is shown in Table 11

Table 11 GMW's direct vs indirect costs over the 2020 regulatory period ($2019-20, $million)

	2020-21	2021-22	2022-23	2023-24
Direct costs charged to districts	$30.7	$30.5	$30.6	$30.6
Indirect costs allocated to districts	$12.3	$10.0	$10.0	$10.0
Direct per cent	71%	75%	75%	75%
Indirect per cent	29%	25%	25%	25%

Source: Aither – Based on data supplied by GMW

Note: Numbers have been rounded

3.6.4. Aither's position on GMW's cost allocation approach

Aither considers GMW's method of operations costing to its gravity irrigation districts is appropriate. GMW's approach of direct charging a higher proportion of its operating costs to the gravity irrigation districts is more transparent than the approach used in 2016. We note that the higher proportion of direct costing does not indicate that operating costs are becoming less centralised, rather it reflects GMW's shift away from utilising an allocation method to distribute its centralised operating costs.

3.7. Operating cost to serve analysis

Aither has undertaken an operating cost to serve analysis of GMW's costs in the Shepparton irrigation district and the average costs across the other five irrigation districts currently captured by the existing uniform charge. We have conducted this analysis to assess the operating costs underpinning GMW's proposal to include Shepparton in the uniform delivery tariff, assessing if Shepparton's operating costs now align with the average costs across the rest of the GMID. Our analysis also assesses the influence of GMW's decision to shift the operating costs and delivery shares of the Broken Creek customers from Murray Valley (captured by the combined five irrigation districts) to the Shepparton irrigation district.

3.7.1. Assumptions underpinning Aither's analysis

Our assessment of GMW's operating cost allocation methodology found that the shift to a higher proportion of direct costing to the irrigation districts is more reflective of the operating costs incurred by each district than the approach adopted by GMW during the 2016 Price Review. The new approach is more aligned with the alternative approach adopted by the ESC in 2016 which was utilised to undertake the operating cost to serve analysis of GMW's 2016 proposal for a uniform GMID delivery charge. However, GMW's methodology underpinning its proposed 2020 tariff reform direct charges management overheads and several centralised business units, thereby providing a higher level of granularity than the approach adopted in 2016.

Our analysis has adopted GMW's basis of operating costs directly charged to the irrigation districts and the allocation of corporate overheads.

The operating costs included in the analysis are only those that can be attributed to GMW's gravity irrigation delivery services, excluding the costs associated with other services provided by GMW within the GMID (e.g. drainage). As covered in section 3.6, GMW now ring-fences customer service and billing cost to be recovered via its service charge. These costs are also excluded from our analysis.

Aither's analysis has removed the costs associated with service point related operating activities on the basis that these costs are recovered by GMW's service point charges which are applied uniformly across the GMID for each service point type. Removing these costs eliminates any distortions from the analysis that may arise due to variances in the distribution of service points across the irrigation districts in the GMID.

A common denominator of delivery shares has been used to represent the comparison of operating costs to serve per delivery share in Shepparton with the five districts captured under the existing common tariff.

This analysis focused on the operating costs within the GMID and does not give consideration to other costs such as the return on and of capital expenditure. Our analysis should not be interpreted as the basis for a tariff calculation.

3.7.2. Results of Aither's operating cost to serve analysis

Aither's analysis has assessed the operating costs from 2019-20 through to 2023-24 (the final year of the next regulatory period).

Table 12 shows the variance in operating costs per delivery share for Shepparton compared to the five districts currently captured by a uniform charge. The operations costs and delivery shares from 2020-21 incorporate the shift of Broken Creek customers to the Shepparton irrigation district as proposed by GMW in its pricing submission. It can be seen that there is a significant reduction in Shepparton's operating costs per delivery share between 2019-20 and 2020-21 relative to the reduction in the five districts under the existing uniform charge. Shepparton's operating cost per delivery share shift from being 45 per cent higher than the other five districts combined in 2019-20 to only 11 per cent in 2020-21. Whilst the overall operating costs per delivery share in Shepparton decline slightly over the regulatory period, projected costs per delivery share in the other five districts reduce to a greater extent over the period, resulting in a gradual increase in the proportional difference between Shepparton and the other combined districts.

Table 12 Operating cost to serve comparison – Broken Creek shifted to Shepparton irrigation district in 2020-21 ($2019-20, $million)

	2019-20	2020-21	2021-22	2022-23	2023-24
Five districts combined					
Operating costs (excluding service point related costs)	$30,871,432	$26,095,867	$24,389,651	$24,662,156	$24,934,160
Delivery shares	13,619	13,306	13,306	13,306	13,306
Operating cost per delivery share	$2,267	$1,961	$1,833	$1,853	$1,874
Shepparton					
Operating costs (excluding service point related costs)	$5,698,200	$4,379,074	$4,110,407	$4,235,483	$4,321,393
Delivery shares	1,739	2,006	2,006	2,006	2,006
Operating cost per delivery share	$3,276	$2,183	$2,049	$2,111	$2,154
Shepparton's higher operating cost per DS	**45%**	**11%**	**12%**	**14%**	**15%**

Source: Aither – Based on information provided by GMW

In order to assess the influence GMW's shift of the Broken Creek customers in 2020-21 has had on Shepparton's operating costs per delivery share, Aither requested data on the operating costs and delivery shares associated with the customers in the Broken Creek. Aither reallocated the Broken Creek operating costs and delivery shares from the Shepparton irrigation district to the combined five districts from 2020-21 to 2023-24 (where Broken Creek customers are currently captured in Murray Valley). The results of this shift are shown in Table 13.

Comparing Table 12 and Table 13, it can be seen that whilst the largest portion of the change in cost per delivery share is due to cost reductions in Shepparton, a significant proportion of Shepparton's reduced operating cost per delivery share relative to the other five districts combined can be attributed to the shift of Broken Creek customers to the Shepparton irrigation district. The addition of Broken Creek customers to the Shepparton irrigation district will spread Shepparton's operating costs across a larger customer base and number of delivery shares with limited additional operations costs incurred to service the Broken Creek. This has the inverse impact on the average operating cost base of the other five districts currently captured under a uniform charge – increasing the cost per delivery share for those districts.

Table 13 Operating cost to serve comparison – Broken Creek remains in Murray Valley irrigation district

	2019-20	2020-21	2021-22	2022-23	2023-24
Five districts combined					
Operating costs (excluding service point related costs)	$30,871,432	$26,323,668	$24,614,690	$24,884,626	$25,153,149
Delivery shares	13,619	13,573	13,573	13,573	13,573
Operating cost per delivery share	$2,267	$1,939	$1,814	$1,833	$1,853
Shepparton					
Operating costs (excluding service point related costs)	$5,698,200	$4,151,274	$3,885,368	$4,013,013	$4,102,404
Delivery shares	1,739	1,739	1,739	1,739	1,739
Operating cost per delivery share	$3,276	$2,387	$2,234	$2,307	$2,359
Shepparton's higher operating cost per DS	**45%**	**23%**	**23%**	**26%**	**27%**

Source: Aither – Based on information provided by GMW

The relatively low operating costs of the Broken Creek and its influence on the operating costs per delivery share when shifted to Shepparton highlights the influence that lower cost areas can have on the operating cost per delivery share of the entire district. This raises questions as to why district boundaries are drawn the way they are and the influence that these boundaries can have on customer charges. Box 1 outlines the circumstances leading to Broken Creek customers being included in the Murray Valley irrigation district and provides a summary of GMW's rationale provided to Aither for shifting the Broken Creek costs and delivery shares to Shepparton.

Box 1: Broken Creek

Broken Creek separates the Murray Valley irrigation district (supplied from Murray system resources) and the Shepparton irrigation district (supplied from Goulburn system). Water resources in the Broken Creek can come from a mixture of sources, including Broken Creek catchment inflows, the Murray Valley irrigation district and local irrigation drainage inflows, however as GMW note in their pricing submission, the majority of water available to the Broken Creek is delivered from the Goulburn system via the Shepparton irrigation district infrastructure. Historically, Broken Creek customers were shared between Murray Valley irrigation district and the Shepparton irrigation district, depending on which side of the creek their properties were located on. Most Shepparton Broken Creek customers applied for transfer to the Murray Valley irrigation district in the early years of the Millennium drought to take advantage of an administrative anomaly that enabled them to access higher seasonal water allocations from the Murray system at that time. This anomaly was subsequently resolved as part of unbundling in 2007.

GMW has proposed that costs and revenues for Broken Creek customers should be assigned to the Shepparton Irrigation Area, rather than the Murray Valley Irrigation Area. GMW's rationale for this proposed reallocation of customers, costs and revenue is that the primary source of water

supply for the Broken Creek is the Goulburn system. This water is delivered via the East Goulburn Main, which is a major delivery channel of the Shepparton Irrigation Area. It is only during the relatively infrequent years when the Goulburn seasonal allocation is less than 100% that some supplementary supplies are provided through the Murray Valley network. In these years, 69% of the supply still comes from the Goulburn system through Shepparton and 31% is supplied via Murray Valley infrastructure from the Murray system.

The key considerations for this issue include:

- water delivery infrastructure serving the Broken Creek is overwhelmingly in the Shepparton Irrigation Area,
- the key service outcomes for Broken Creek are determined by the sharing of available flows between Shepparton irrigation district customers and the Broken Creek, and
- historically many of these Water Users had been in the Shepparton irrigation district.

On the basis of these key issues, Aither considers the transfer of Broken Creek to the Shepparton irrigation district appears reasonable and is not inconsistent with GMW's adopted tariff criteria. However, we note the potential for impacts on customers in the Broken Creek from adopting such a change if the ESC does not approve GMW's proposed uniform delivery charge. In this circumstance, Broken Creek customers would be subject to the Shepparton irrigation district charges.

3.7.3. The drivers behind Shepparton's operating cost reduction

Aither requested GMW to provide the drivers of Shepparton's cost reductions since the 2016 Price Review. GMW provided Aither with a high-level comparison of Shepparton's operations costs in the 2015-16 year and the forecast operations costs for 2020-21 by operating account group. The cost comparison excluded the shift of Broken Creek costs into the Shepparton irrigation district to only show the changes to Shepparton's operating costs on a consistent basis to costs incurred in 2015-16. A summary of the operating cost information provided by GMW can be seen in Table 14.

Table 14 Shepparton's operating cost reductions from 2015-16 ($2019-20, $million)

Operating costs	2015-16	2020-21 (forecast)	Variance
Labour costs	$2.6	$1.3	-$1.2
Materials, plant and vehicles, contracted services, and other costs	$4.6	$2.8	-$1.8
Overheads and shared costs	$2.9	$1.9	-$0.9
Total	**$10.0**	**$6.1**	**-$4.0**

Source: Aither – Based on information provided by GMW

Note: Numbers have been rounded

In Aither's discussions with GMW, we questioned why similar levels of savings in operating costs could not be achieved in the other irrigation districts. GMW responded with a combination of qualitative and quantitative summaries of what operating changes have occurred in Shepparton to result in the reduction of operating costs since 2015-16. GMW was able to quantify at a high-level some of the changes and resulting savings in Shepparton, together with rationale for why those same

savings couldn't be achieved in other irrigation districts. However, GMW was unable to quantify the drivers behind all the savings achieved in the Shepparton irrigation district, instead providing general qualitative rationale of changes that have occurred. A summary of GMW's responses is provided below:

- The automated channel system has facilitated a reduction in operations staff over the current regulatory period, allowing GMW to enlarge section sizes covered by staff. The reduction in staff had been delayed as there was no separation packages available at the time of Shepparton's modernisation and the resulting natural attrition reducing staff numbers didn't align with the necessary reduction. The current business transformation has provided an opportunity to offer separation packages, with a higher proportion in the Shepparton compared to other irrigation districts. This has also resulted in a reduction in the number of vehicles required.
    - The current organisational restructure is likely to result in a reduction of approximately $0.3 million in staffing costs in Shepparton, with staff opting for early retirement or the regional mobility program.
- There has been a reduction in the number of maintenance labour hours due to less staff, also resulting in fewer vehicles required. This followed a review of how maintenance was undertaken in the Shepparton district compared to the rest of the GMID, identifying inefficiencies in the approach Shepparton was using. Shepparton has adopted the maintenance practices of other districts resulting in reduced costs.
    - Shepparton's maintenance budgets were higher than other districts and have been reduced by $0.4 million.
    - Materials spend has reduced with the introduction of improved maintenance techniques and changing technology (e.g. batteries) associated with automated equipment.
- The allocation of overhead charges has reduced with the reduction in corporate labour.
- Unit costs associated with pedestals have reduced over time, while the maintenance costs for pedestals has now been spread across other districts (non-Shepparton) as a result of the continued roll-out of the Connections Project.
- The Mechanical / Electrical team had previously budgeted most of their staff in Shepparton because Shepparton had most of the modernised equipment. This has now been reallocated appropriately following the requirement for them to work across the broader GMID, resulting in a $0.7 million reduction to Shepparton.
- Entitlements to cover losses in the channel systems have reduced in the Bulk Entitlement Orders (BE) for all districts since 2015-16. In addition, Shepparton had a further 12 GL reduction in its loss entitlement following a correction made to the BEs. This has resulted in overall reductions in bulk water charges to Shepparton for its loss entitlement.
- Due the lack of rationalisation opportunities in Shepparton the budget that had existed for rationalisation has been removed.

We consider that overall the rationale provided by GMW for the drivers of cost reductions in Shepparton seem reasonable, however we haven't been able to undertake a complete quantitative assessment to verify those reductions with the total reduction of Shepparton's costs over the period. GMW advised Aither that it was not possible to prove a complete quantitative dataset linked to the drivers of Shepparton's savings over the period.

3.8. Summary of analysis

Based on our review of GMW's proposed changes to its gravity irrigation delivery tariffs:

- Aither considers GMW's operating cost allocation based on higher proportion of direct charging to the districts is more transparent than the approach used in 2016 and more reflective of how costs are incurred to service each district.
- Our operating cost to serve analysis highlighted a significant reduction in Shepparton's operating cost to serve per delivery share from 2019-20 to 2020-21 relative to GMW's cost to serve per delivery share for the other five irrigation districts combined.
- Shepparton's operating costs to serve per delivery share in 2020-21 is 11 per cent higher than the other five irrigation districts combined when Broken Creek customers are shifted from Murray Valley to Shepparton.
- If Broken Creek customers remain in the Murray Valley, Shepparton's operating costs to serve per delivery share in 2020-21 is 23 per cent higher than the other five irrigation districts combined.
- The addition of Broken Creek customers to the Shepparton district will spread Shepparton's costs across a larger delivery share base with limited additional operations costs. This has the inverse impact on the average cost base per delivery share of the other five districts currently captured under a uniform charge – increasing the cost per customer in those districts.
- Shepparton's operating costs have reduced significantly since 2015-16 however GMW did not provide a complete quantitative assessment of the of the net impact those drivers had on Shepparton's total cost reductions. We note that GMW did provide the total cost reductions by activity over the time and provided qualitative descriptions of the operations changes. We consider that overall the rationale provided by GMW for the drivers of cost reductions in Shepparton seem reasonable.

4. Storage tariffs

4.1. Background

As discussed in section 3.1, entitlement storage fees were first introduced as part of unbundling reforms in 2007. They recover the costs involved in the operation, maintenance and renewal of the reservoirs and weirs that harvest and store water entitlements, together with the costs associated with water resource assessments and making seasonal determinations of water availability.

Northern Victorian regulated water systems are highly interconnected. Historically, they were divided into two major systems, the Murray system (which includes the regulated Ovens and King systems) and the Goulburn-Campaspe-Loddon system, which also included the Broken River, and was commonly referred to as the Goulburn system.

Water allocations for entitlements in the Goulburn, Loddon and Broken basins were linked, while the Campaspe system was related to availability of resources in that basin. Allocations in the Murray system were separate from the Goulburn and based around access to Victoria's portion of the shared Murray-Darling Basin resources. As part of the codification of rights to water and the ongoing development of the Victorian water entitlement framework, from the mid-1990s the government implemented a program of issuing Bulk Entitlements (BEs) to water corporations. BEs clarified and converted previous rights to water into explicit entitlements. They also identified the storage reservoirs and weirs that contributed to the resources available for entitlements, how the available water is shared/allocated between all the entitlements on issue in each river basin, and the formula for sharing cost for the headworks assets in each basin between BE holders.

The formalisation of water sharing and seasonal allocation processes for each basin also highlighted clear differences in reliability between the water entitlements in different basins. Costs on a per ML of entitlement basis are generally much higher in the smaller, lower yielding basins compared to costs in the large, high yielding basins like the Goulburn and Murray.

All water corporations, including GMW on behalf of its retail irrigation customers, pay bulk water charges on a basin pricing basis, which is mandated in the respective BE orders. In forming storage charges for water right holders, GMW chose to aggregate and average the basin costs it paid into the two historic system costs for the Murray and Goulburn systems. At the time of unbundling, and the full separation of water rights from land, it was clear that the more flexible, open trade of Water Shares could mean that water rights that had been held by GMW customers may in future be purchased by customers from other areas (e.g. Lower Murray Water or interstate).

A 2005 independent consultant review of GMW pricing policies recommended, amongst other things, that GMW consider moving from system pricing to basin pricing for bulk water. As part of implementation of unbundling, GMW took an in-principle decision in 2007 to move to basin pricing for all its entitlement storage fees for Water Share holders. This was implemented for Non-Water Users (i.e. where Water Shares were not associated with a specific parcel of land in the GMW region), but implementation was deferred for GMW irrigation customer to allow for further consideration of transition issues and cost impacts on smaller, high cost basins.

Ultimately, this stage of the pricing reform did not proceed, giving rise to the current situation where entitlement storage fees for Water Shares in the Non-Water User category are charged on a basin price basis, whilst GMW customers holding Water Shares associated with land are charged on a system basis.

4.2. GMW's proposed tariff reform

Currently Non-Water User Water Shares and Bulk Water Entitlements are charged a basin price for water entitlement storage, whilst Water User Water Shares are charged a system price. GMW has proposed system pricing for all retail Water Shareholders, which would move Non-Water Users from basin pricing to system pricing. GMW has not proposed changes to storage fees paid by Bulk Entitlement Holders in its pricing submission, however GMW has stated it is continuing discussions on transitioning bulk charges to a system price with its Bulk Entitlement Holders.

The basin price is designed to be reflective of the costs of water storage within each basin. As a result, customers currently under basin pricing can potentially pay vastly different storage fees, dependant on the basin their entitlement resides in.

System pricing is determined by taking the weighted average of prices for basins contained within each system. There are two systems within GMW's jurisdiction: the Goulburn system, consisting of the Broken, Goulburn, Campaspe, Loddon and Bullarook basins, and the Murray system, consisting of the Murray and Ovens basins.

4.3. Approach to our assessment

Based on discussions with ESC staff, Aither was required to provide high-level advice on whether the proposed shift to system-based pricing for Water Share owners has been properly implemented by reviewing GMW's underlying weighted average calculation of the Murray and Goulburn system charges.

In order to assess the appropriateness of GMW's calculation of the weighted average system charge we undertook a review a GMW's model calculating the weighted average system charge to ensure:

- The appropriate basins were included in the calculation for the Murray and Goulburn systems
- Only High Reliability Water Shares were included in the weighted average High Reliability system calculations and Low Reliability Water Shares were included in the weighted average Low Reliability system calculation.
- The number of Non-Water User entitlements for each basin used in the weighted average calculation reflected the quantities included in GMW's Price Submission financial template, and
- The weighted average formula was applied correctly.

4.4. Weighted average cost calculation

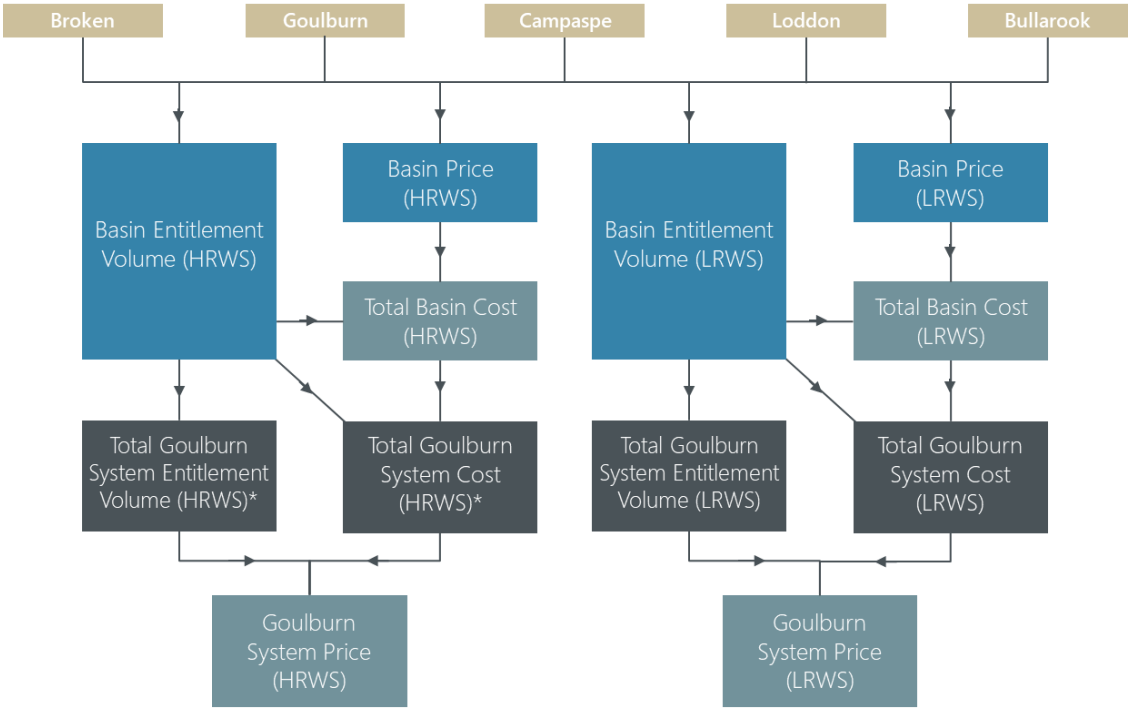
GMW's system prices are determined by a weighted average calculation utilising the following inputs:

- Basin prices reflecting the underlying basin costs within the system. The Goulburn system includes the Broken, Goulburn, Campaspe, Loddon and Bullarook basins, while the Murray system consist of the Murray and Ovens Basins.[7]

[7] Basin prices for Murray, Goulburn and Campaspe basins used in the system charge calculations are net of a rebate equivalent provided to bulk water customers as a lump sum payment for spill revenue collected by GMW in the 2016 regulatory period. The system price calculated for retail water shares are inclusive of the equivalent rebate amount.

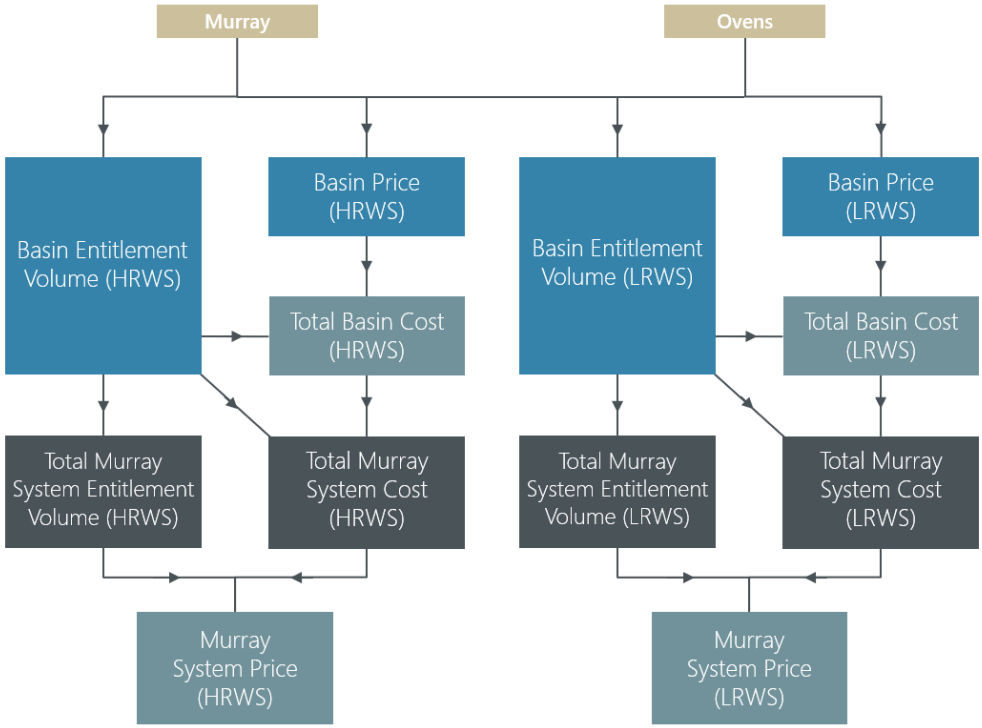
- Entitlement volumes for basins within the system, inclusive of Water Shares charged a system price and exclusive of bulk water entitlements charged a basin price.

Figure 1 and Figure 2 provide a visual guide for the calculation of the Goulburn and Murray system prices.



Source: Aither

Figure 1: Visual guide for calculation of the Goulburn system price



Source: Aither

Figure 2: Visual guide for calculation of the Murray system price

First, the volumes of High Reliability (HR) and Low Reliability (LR) entitlements in each basin within a system are split. This ensures that only relevant inputs are used in the calculation of the HRWS system price and LRWS system price.

The total cost of HR/LR entitlements in each basin within a system is determined by multiplying each HR/LR basin price with the HR/LR entitlement volume (from customers paying a system price) of that basin. Total HR/LR basin costs are then summed to determine the total HR/LR system cost. This system cost is divided by total HR/LR entitlement volume across the system to determine the weighted average HR/LR system price. The weighted average calculation ensures that, in aggregate, collective total fees paid by customers on system pricing is equal to the collective total fees they would pay if they were on basin pricing.

The build-up of the four system prices is shown in detail in Table 15.

Table 15 Build-up of proposed 2020-21 HR and LR system prices

High Reliability							
System	**Goulburn System**					**Murray System**	
Basin	Broken	Goulburn	Campaspe	Loddon	Bullarook	Murray	Ovens
Basin Price ($/ML)[4]	59.96	7.15	24.96	44.13	461.67	8.92	75.62
Total Retail Water Share Volume (ML)	17,480	1,063,459	23,409	21,052	758	980,841	25,726
Total Basin Cost ($)	1,048,158	7,605,858	584,296	929,042	349,807	8,744,922	1,945,287
Weighted average formula for system price	Total Goulburn System Water Shares/Total Goulburn System cost[1]					Total Murray System Water Shares/Total Murray System cost	
Adjustment for environmental levy and discount expense	Goulburn system price before adjustment * 1.0307					Murray system price before adjustment * 1.0307	
System Price ($)	9.62					10.95	
Low Reliability							
System	**Goulburn System**					**Murray System**	
Basin	Broken	Goulburn	Campaspe	Loddon	Bullarook	Murray	Ovens[2]
Basin Price ($/ML)[4]	-	3.70	15.40	-	279.73	4.05	-
Total Retail Water Shares Volume (ML)	3,219	460,927	18,927	7,769	381	315,012	12,076
Total Basin Cost ($)[3]	-	1,703,585	291,444	-	106,521	1,276,344	-
Weighted average formula for system price	Total Goulburn System cost*/Total Goulburn System Water Shares*					Total Murray System cost/ Total Murray System Water Shares	
Adjustment for environmental levy and discount expense	Goulburn system price before adjustment * 1.0307					Murray system price before adjustment * 1.0307	
System Price ($)	4.41					4.02	

Notes on Table 15:

Source: Aither – Based on information provided by GMW

1: The weighted average formula for the HR Goulburn system price includes quantities and prices from water allowance storages. These water allowance storages have been accounted for in the proposed HR Goulburn system price.

2: Ovens Basin total retail Water Shares includes Spill Reliability (Water User) and Spill Reliability (Non-Water User) quantities.

3: Some basins do not have LR basin prices, and hence do not contribute to the total Goulburn system cost.

4: Basin prices for Murray, Goulburn and Campaspe basins used in the system charge calculations are net of a rebate equivalent provided to bulk water customers as a lump sum payment for spill revenue collected by GMW in the 2016 regulatory period. The system price calculated for retail Water Shares are inclusive of the equivalent rebate amount.

Based on our review we found that:

- Basin prices and volumes were correctly distributed between the Goulburn and Murray systems
- Non-Water User entitlement quantities and prices used in calculations were consistent with the financial template
- Only HR prices and quantities (and water allowance storage data for the Goulburn system) were considered in the calculation of HR system prices. Similarly, only LR prices and quantities (and spill reliability data for the Murray system) were considered in the calculation of LR system prices
- The weighted average formula and adjustments were applied correctly.

4.5. Shift of Non-Water User entitlements to system charge

The impact of shifting Non-Water Users to system pricing is dependent on the allocation of Non-Water Users across the two system's basins. If most Non-Water Users own entitlements in basins where the basin price is lower than the system price, shifting these users will likely result in a lower system price. Similarly, if most Non-Water Users own entitlements where the basin price is higher than the system price, a higher system price is likely.

In both the Goulburn and Murray systems, most Non-Water Users hold entitlements in basins with a low basin price, such as the Goulburn Basin and Murray Basin. This is shown in Table 16.

Table 16 Non Water User entitlement volumes for HR and LR entitlements in each basin

	Goulburn System					Murray System	
Basin	**Broken**	**Goulburn**	**Campaspe**	**Loddon**	**Bullarook**	**Murray**	**Ovens**
HRWS Non- Water User Volume (ML)	2,022	518,444	9,862	4,530	2	628,528	695
LRWS Non-Water User Volume (ML)	85	151,175	1,304	897	0	119,321	188

Source: Aither – Based on information provided by GMW

4.6. Summary of analysis

GMW has proposed to charge all Water Share owners a system price. Under the current approach, only Water User Water Shares are charged a system price while Non-Water User Water Shares are charged a basin price. Bulk entitlement holders are proposed to continue being charged a basin price.

We have reviewed GMW's calculations of the Goulburn and Murray System charges for both High and Low reliability Water Shares and confirm that the calculations undertaken by GMW have appropriately captured Non-Water User Water Shares in the relevant weighted average system-based charge calculations. Aither's review determined that:

- Basin prices and volumes were correctly distributed between the Goulburn and Murray systems
- Non-Water User entitlement quantities and prices used in calculations were consistent with the financial template
- Only HR prices and quantities (and water allowance storage data for the Goulburn system) were considered in the calculation of HR system prices. Similarly, only LR prices and quantities (and spill reliability data for the Murray system) were considered in the calculation of LR system prices
- The weighted average formula and adjustments were applied correctly.

4.6.1. Potential implications of tariff reform

Aither did not consider the potential implications of the proposed changes to GMW's water storage fee tariff structure and how they may be integrated by other water utilities, Lower Murray Water (LMW) for example. However, during our review of GMW's tariff structure for water storage charges, Aither observed that the possibility of an issue could arise around the differences in the charges applied to Non-Water Users by other water utilities (e.g. LMW) and GMW under its proposed approach. Aither's understanding is that LMW would continue to be charged a basin price for Water Shares held by their customers. As the Goulburn and Murray basin prices are lower than the system, Non-Water Users charged by GMW could potentially seek to shift to become LMW customers and receive lower prices, potentially diminishing the expected outcome for this reform. The materiality of this scenario is difficult to estimate as it will depend on customers' willingness and ability to shift, however the overall value of water held by Non-Water Users is significant.

As noted in Section 4.2, GMW has indicated that it will continue discussions on transitioning bulk charges to a system price with its Bulk Entitlement Holders. If this occurs, this issue may only be temporary, however if the subsequent reform is unable to be implemented this potential risk will remain.

5. Service point tariffs

5.1. Background

Service points are the connection point between a farm and the water supply network (channel, pipeline, river or aquifer). For most significant Water Users, the service point incorporates a meter to measure water deliveries for water sharing and entitlement compliance management and for charging purposes.

When water was attached to land, the number of service points needed for effective supply to each property was clearly defined and fixed. Water trade and other factors have substantially changed water use patterns and locations, and consequently the need for service points has also changed.

Service point fees were introduced to reflect the costs associated with operating, maintaining and replacing service points. They also provide price signals to encourage removal of unneeded service points which can facilitate the wider rationalisation of distribution network assets.

The modernisation of the gravity irrigation network and a range of other drivers has also led to a need for more accurate meters. There is now a much wider range of meter types installed across water supply systems, which provide different capabilities (e.g. remote reading, local reading, remote operation etc) and which may also have different costs. GMW's approach to service point fees has been evolving to address these issues.

5.2. 2016 Price review

Since the 2016 Price Review GMW has been transitioning its modernised gravity irrigation service points to tariffs reflecting the cost underpinning the service point type. Prior to this transition the gravity irrigation service points (excluding Domestic and Stock) were charged the same tariff, regardless of the type of service point. GMW currently charges a separate tariff for the following gravity irrigation service points:

- Domestic and Stock (D&S)
- Local Operate, Local Read
- Local Operate, Remote Read, and
- Remote Operate, Remote Read.

Following the approval of the diversions tariff reform by the ESC in 2016, GMW charges the following service point tariffs for Regulated Waterways, Unregulated Waterways and Groundwater (excluding SIR) customers:

- Unmetered service point fee, and
- Metered service point fee.

5.3. GMW's proposed tariff reform

GMW has proposed several changes to the service point fee structure across multiple services, including applying charges more consistently across services. Table 17 shows GMW's proposed changes in detail.

Table 17 Detail of GMW's proposed service point reform

Proposed reform	GMID	Pumped Irrigation	Pipeline Water Districts	Diversions
Include a share of corporate overhead costs in SPFs. Phase in over four years from 2020-21.	✔	✔	✔	✔
Apply SPFs to all service points shifting from a charge only applied per additional service points. Phase in over four years from 2020-21.*		✔	✔	
Apply service point fees based on service point type, aligning structure and charges with GMID.		✔		
Amalgamated fees for Local Read Local Operate and Remote Read Local Operate service points into a single Local Operate SPF. Phase in over four years from 2020-21.	✔			
Remove SCADA costs from remote read SP and allocate across GMID delivery charge. Full reduction made from 2020-21.	✔			
Metered SPF to increase in line with amalgamated Local Operate GMID SPF.				✔

Source: Aither – Based on GMW's Price Submission

Notes: *Mitiamo will incur the full charge from the first year of operation

Table 18 provides a comparison of GMW's existing service point tariff structures in 2019-20 with its proposed structure and prices in 2023-24 following the transition period of some tariff changes.

Table 18 Comparison of GMW's current and proposed service point fee structure after full transition in 2023-24 ($nominal)

Current 2019-20 fee structure				
Service Point Type	**GMID**	**Pumped Irrigation (no charge for first service point)**	**Pipelined Water Districts (no charge for first service point)**	**Diversions**
D&S	$120	Additional SPF $120	Additional SPF $120	$120 (Unmetered service point for D&S or Irrigation)
Local Operate, Local Read	$350	Additional SPF $120	Additional SPF $120	$350 (Metered Irrigation service point)
Local Operate, Remote Read	$850	Additional SPF $120	Additional SPF $120	
Remote Operate, Remote Read	$1,060	Additional SPF $120	Additional SPF $120	N/A
Proposed 2023-24 fee structure when fully phased in				
Service Point Type	**GMID**	**Pumped Irrigation**	**Pipelined Water Districts**	**Diversions**
D&S	$145	$145	$145	$145 (Unmetered service point for D&S or Irrigation)
Local Operate (Local Read or Remote Read)	$455	$455	N/A	$455 (Metered Irrigation service point)
Remote Operate, Remote Read	$1,070	$1,070	N/A	N/A

Source: Aither – Based on GMW's Price Submission

5.4. Approach to our assessment

The ESC has engaged Aither to provide a high-level review of costs underpinning GMW's proposed service point charges to examine the cost reflectivity of proposed reform. Aither's analysis will assist the ESC's review of GMW's proposed service point tariff reform and its consistency with the regulatory framework and the relevant pricing principles.

We note that improving consistency in the application of service point fees across services and simplifying the charge structure is desirable, but there are a few questions this raises, particularly around cost reflectivity. The intention of our review was to focus on analysing the underlying operating costs of the service points GMW has proposed to undergo tariff reform, including:

- the underlying operating costs associated with all service point types across services proposed to receive the same charge

- the consistency of corporate overhead allocation to the service point types and
- if the introduction of a fee per service point (rather than per additional SP) in pumped irrigation and pipeline districts has resulted in subsequent reduction in other tariff revenue from within the service.

5.5. Service point cost information provided by GMW

Aither requested GMW provide the operating and maintenance costs and the associated assumptions underpinning the service point fees in each of the service point categories included in its proposed tariff reform.

GMW provided Aither with a combination of qualitative and quantitative operating and maintenance information.

The foundation of the quantitative information provided by GMW is based on a 15-year cost profile estimate for each of the gravity irrigation service points:

- Domestic and Stock
- Local Operate Local Read
- Local Operate Remote Read, and
- Remote Operate Remote Read.

The cost profile estimate is based on several operating and maintenance activities occurring over the 15-year life profile of the service points, underpinned by unit cost assumptions and utilisation for labour, vehicles, materials and management overheads. The 15-year cost profile estimate is broken down to a per year average and forms the initial basis of the operating and maintenance costs underpinning GMW's annual gravity irrigation service point charges. GMW has made adjustments to these costs to account for additional meter reads, cost reductions from technological advancements and removal of SCADA based costs.

GMW has utilised the costs estimated for each gravity service point type as a basis for the costs of service points in water supply districts, pumped irrigation districts and diversions. However, GMW has made adjustments to some of these estimates based on the specific differences in operations and maintenance activities in these other service areas compared to the GMID. GMW stated the adjustments accounted for differences in travel times to read meters, flushing of meters, deeming (of use) compliance costs and additional meter reads. These adjustments, and the adjustments to the gravity irrigation service point costs, are based on high-level assumptions. In providing the cost estimations GMW stated that:[8]

> *We have substantially moved to a fairly uniform metering fleet and will continue to do so. Therefore, the activities and thus the costs for 'maintaining' a meter should be pretty much the same regardless of what service the meter is located in. Because we don't specifically capture actual costs to individual meters, we find it incredibly hard to give the actual costs per service point. We have used a first principles approach to establish a cost per service point based on their type (e.g. Remote Operate, D&S).*

Aither considers that adopting historical cost information such as the 15-year cost profile estimate is appropriate. We note that the costing is reasonably high-level and adjustments have been made to

[8] Information provided by GMW

the cost information to account for various factors. These adjustments, while mostly appearing logical in their application, have limited basis for justifying the level of the adjustment that has been applied. Furthermore, there are instances where these adjustments don't completely align with GMW's qualitative descriptions of activities underpinning the operations and maintenance costs. Given this, Aither has not been able to determine whether the level of these adjustments is appropriate.

For the service point fees for services other than the GMID, GMW has essentially adopted the gravity irrigation cost profile and adjusted the information to account for differences between the different cost profiles. As with the adjustments to the 15-year cost profile, these adjustments were generally hardcoded within the spreadsheet with only limited justification of the level of the adjustments.

We note that following the adjustments made by GMW, the overall costs for each of the equivalent service points across each service is the same. Considering the lack of evidence to justify the level of adjustments that were made to the costs, this raises concerns as to the robustness of these adjustments.

Given that some of this cost information and adjustments were provided quite late in the review process, Aither was not able to source additional information for the review. Therefore, the subsequent analysis of the underlying costs is based on the information provided by GMW, including the aforementioned adjustments. Aither has not validated the adjustments, and therefore cannot confirm the accuracy of GMW's service point costing information.

5.6. Corporate overhead cost allocation to service points

Historically, GMW's service point fees (SPFs) have not attracted corporate overheads. GMW has proposed inclusion of corporate overheads in SPFs across all service points types in each service area. GMW state that the inclusion of corporate overheads would be more cost-reflective, as operating and maintenance activities for service points attract corporate overheads.

GMW stated that it has applied the same methodology in the allocation of corporate overheads to SPFs as other tariffs which currently include them. GMW has applied the corporate overhead to service points based on 21 per cent of the underlying operation costs, as shown by Table 19. The corporate overhead allocation has been applied consistently to all service point types.

Table 19 Corporate overheads as a share of proposed total service point costs ($2019-20)[3]

	D&S[1]($)	Local Operate Local Read[2] ($)	Local Operate Remote Read ($)	Remote Operate Remote Read ($)
Total O&M costs	121	351	461	958
Overheads	25	74	97	201
Total Cost	**147**	**425**	**558**	**1,160**

Source: GMW supplied

Notes: [1] or diversions unmetered

[2] or diversions metered excluding D&S

[3] the total O&M costs provided by GMW for each service point type are the same across all services where applicable (GMID, pumped irrigation, pipeline water districts and diversions). For simplicity, the corporate overheads shown in this table reflect the way they are applied across the relevant service points across all the identified services.

In response to Aither's request for the driver behind the proposed increase to D&S SPFs, GMW has stated that the increase can be attributed to the inclusion of corporate overheads in the D&S cost as

shown by Table 19. Aither considers the inclusion of corporate overheads in SPFs to be appropriate given GMW's justification.

5.7. Amalgamation of gravity Local Read Local Operate and Remote Read Local Operate service point charges

GMW has proposed to amalgamate the existing Local Operate Local Read (LR) and Local Operate Remote Read (RR) service points tariffs into a single Local Operate tariff to be phased in over 4 years. GMW's Price Submission provides the following reasoning for the combined tariff:

> *All delivery system customers, not just those with higher functionality service points benefit from the SCADA system. It enables more effective and efficient operation and higher levels of service. Local operate, remote read customers receive no appreciable service level benefit from the SCADA link to their service points. Customers receive essentially the same level of service from Local Operate, Local Read and Local Operate, Remote Read irrigation service points, yet pay almost $500 more.*

Part of the amalgamation includes the removal of the SCADA system costs from the RR service point cost base and allocates them to the gravity irrigation delivery charges. Table 20 presents GMW's assessment of the operating costs underlying the LR and RR service points following the removal of the SCADA system costs.

Table 20 Proposed gravity service point costs ($2019-20)

Operating and Maintenance costs	D&S ($)	Local Operate Local Read ($)	Local Operate Remote Read ($)	Remote Operate Remote Read ($)
Annual Inspection Test Procedure (incl. 1 meter read)	65	65	52	52
Meter Read	40	40	-	-
Additional meter reads	-	80	-	-
System costs*	-	-	-	295
Validation, battery, valve, solar panel and other costs	16	166	513	612
Cost reductions from technological advancements	-	-	-103	-
Total O&M costs	**121**	**351**	**461**	**958**
Overheads	25	74	97	201
Total Cost	**147**	**425**	**558**	**1,160**

Source: GMW supplied

Notes: *GMW removed SCADA related costs from the Local Operate Remote Read service point

Following the removal of SCADA based costs from the RR service point its underlying costs remain approximately 30 per cent higher than the LR service point. We note that GMW has also removed a

portion (but not all) of the SCADA based costs from the full functionality Remote Read Remote Operate service point.

5.8. Pumped irrigation districts charge per service point

Customers in GMW's pumped irrigation districts currently receive no charge on their first service point and are only charged a fee for each additional service point they receive. The additional service point charge is currently based on the D&S service point fee regardless of the type of service point it's being charged for.

GMW is proposing to replace the additional service point fee with a fee charged on every service point. GMW has also proposed to replicate the service point tariff structure it has proposed for the GMID, applying a specific service point charge based on the type of service point. Table 21 shows GMW's assessment of the operating costs underpinning each of the proposed service point tariffs for pumped irrigation customers.

Table 21 Proposed costs for pumped irrigation service points ($2019-20)

Operating and Maintenance costs	D&S ($)	Local Operate Local Read ($)	Remote Operate Remote Read ($)
Annual Inspection Test Procedure (incl. 1 meter read)	65	65	52
Meter Read	40	40	-
Additional meter reads	-	80	-
System costs	-	-	295
Validation, battery, valve, solar panel and other costs	16	166	612
Total O&M costs	**121**	**351**	**958**
Overheads	25	74	201
Total Cost	**147**	**425**	**1,160**

Source: GMW supplied

It can be observed that GMW has utilised the same cost build up for its proposed pumped irrigation service point charges as the service point cost build ups in the GMID and the proposed prices are also consistent with those proposed for the GMID. As discussed in Section 5.5, the cost build up is based on the 15 year cost profile (with adjustments) for service points in the GMID.

GMW is proposing to phase in the new tariff structure over four years, commencing 2020-21. We note the potential for customer impacts from the substantial differences in the charge under the existing structure being based solely on the D&S SPF while the new structure proposes significantly higher Local Operate and Remote Operate fees.

GMW would receive additional service point revenue under the proposed service point fee structure, therefore we would expect to see a corresponding decrease in revenue collected from the other tariffs within the service. We completed a high-level check of the net impact of the transition on total revenue for GMW's pumped irrigation tariffs from the changes to its service point fee structure. We

observed that the average forecast revenue per year across the 2020-24 period is below the 2019-20 level. GMW also stated this would occur in a response to one of our queries.

5.9. Pipeline water districts charge per service point

Similar to the proposal for pumped irrigation service points, GMW has also proposed to shift from a charge on additional service points to a charge per service point for customers in its pipeline water districts. The proposed fee per service point will continue to replicate the GMID D&S service point fee.

Table 22 Proposed service point costs for pipeline water districts ($2019-20)

Operating and Maintenance costs	D&S ($)
Annual Inspection Test Procedure (incl. 1 meter read)	65
Meter Read	20
Flushing or cleaning the filter	20
Validation	16
Total O&M costs	**121**
Overheads	25
Total Cost	**147**

Source: GMW supplied

Consistent with the pumped irrigation districts charge, GMW would receive additional service point revenue under the proposed service point fee structure, therefore we would expect to see at least a corresponding decrease in revenue collected from the other tariffs within the service. We completed a high-level check of the net impact of the transition on total revenue for GMW's pipeline water district tariffs from the changes to its service point fee structure. We observed that the average forecast revenue per year across the 2020-24 period is below the 2019-20 level. GMW also stated this would occur in a response to one of our queries.

5.10. Diversions unmetered and metered service point charge

GMW has not proposed a new tariff structure for its diversion customers, apart from allocating corporate overhead costs to diversion service points consistent with other service points. However, the charge for the unmetered and metered diversion service points currently align with the GMID D&S and Local Operate Local Read service point charges respectively. GMW has proposed these charges continue to align with the relevant GMID service point charges in the next period, including the diversions metered service point fee increasing to align with the proposed GMID amalgamated Local Operate charge.

Table 23 details GMW's provided cost breakdown for diversions service points. GMW did not provide separate cost estimates for surface water and groundwater diversions service points. In addition to the issues we have raised in Section 5.5, we note that in particular the cost data shown for GMW's diversion service point costs was predominantly hardcoded with limited justification of the assumptions to the calculations.

The increased travel time costs identified by GMW for diversions was also hardcoded and justified on the basis that there is approximately 15 to 20 per cent greater travel time associated with attending to diversions service points compared to the GMID (based on staff attending the service point 3 times per year). GMW did not provide any further detail beyond this statement. GMW also did not provide the quantitative assumptions used to arrive at its specified deeming costs for unmetered service points, rather providing a qualitative description of the activities undertaken to deem usage.

An example of an instance where a quantitative adjustment doesn't completely align with GMW's qualitative descriptions of cost activities was observed with the annual inspection test procedure costs being included for the unmetered service point. We note that GMW's qualitative list of activities did not specify an annual inspection test procedure being undertaken for unmetered service points.

Table 23 Proposed costs for diversions service points ($2019-20)

Operating and Maintenance costs	Unmetered service point	Metered service point
Annual Inspection Test Procedure (incl. 1 meter read)	45	45
Meter Read	-	40
Cost of deeming where unmetered	40	-
Additional meter reads	-	80
Increased travel time (Diversions)	20	20
Validation, battery, valve, solar panel and other costs	16	166
Total O&M costs	**121**	**351**
Overheads	25	74
Total Cost	**147**	**425**

Source: GMW supplied

5.11. Summary of analysis

It was difficult to assess the underlying costs for the service point fees based on the information provided by GMW. While a 15-year cost profile for GMID service points was provided, adjustments were made to the costs with limited justification as to the reasoning and level of those adjustments.

This 15-year cost profile was also used as the basis for the underlying costs of the pumped irrigation district service points, pipeline water district service points and diversions service points. As noted, GMW also made several adjustments to these costs. Aither is unable to verify GMW's stated costs based on the information provided to us by GMW.

GMW has proposed to amalgamate the charges for GMID LR and RR service points on the basis that they have similar underlying costs. We note that following the adjustments that GMW made to the estimated costs of GMID LR and RR service points, there remains a 30 per cent cost differential.

The variation to the application of pumped irrigation district and pipeline water district services points (where the charge is now applied to all service points rather than only additional service points) would result in GMW receiving additional service point revenue compared to the current service point fee

structure. Consistent with GMW's response to one of our quires, our high-level check observed at least a corresponding decrease in revenue collected from the other tariffs within the respective service categories in the upcoming regulatory period based on GMWs proposal.

6. Other tariff reform

6.1. Background

In addition to the tariff reforms detailed in the preceding sections of this report, GMW's pricing submission has also proposed minor changes to some of its existing tariff structures and introduced tariffs for a new water supply district pipeline.

6.2. Customer service fee and water register fee

GMW currently charges its customers a service fee for each service they receive from GMW, rather than a single service fee per customer. GMW has proposed to change this approach by charging one service fee per customer irrespective of how many services they receive.

GMW has also proposed to separate out the Water Register fee which is currently included within the service fee. This approach is the same as what has been adopted by LMW and would result in customers paying a charge for each Water Share they hold.

As part of our review we completed a high-level assessment of GMW's cost calculations that underpinned the fees. Based on our assessment of these calculations, we consider the charge to be appropriate and based on reasonable calculations and assumptions.

6.3. Unregulated surface water licences

GMW has identified 25 unregulated surface water licence holders it proposes to charge the Resource Management Fee who had previously been exempt due to trading restrictions which have now been removed, allowing these customers to trade under the standard rules. The fee is proposed to be transitioned in over a 4-year period.

We consider it appropriate that GMW apply charges consistently to customers who receive the same service within a service category. We note that unregulated surface water falls under the WIRO pricing principles.

6.4. Mitiamo pipeline tariffs

GMW has proposed a tariff for the new Mitiamo pipeline that is to be constructed in the upcoming regulatory period. The capital expenditure for this project has been reviewed as part of Aither's expenditure review for the ESC and was considered appropriate.

The calculation of the tariff is based on tariffs for other similar pipelines that are operated by GMW. Aither reviewed these calculations and considered that the tariff that has been proposed by GMW to be reasonable based on the cost estimates for the pipeline.

Document history

Revision:

Revision no.	3
Author/s	Christopher Plunkett, Garry Smith, Tim Ryan
Checked	Garry Smith, Rod Coulton
Approved	Tim Ryan

Distribution:

Issue date	Friday 6 March 2020
Issued to	Essential Services Commission
Description	2020 Goulburn-Murray Water Price Review: A review of Goulburn-Murray Water's proposed tariff reform – Final Report

Citation:

Aither 2020, *2020 Goulburn-Murray Water Price Review: A review of Goulburn-Murray Water's proposed tariff reform – Final Report*, Aither Pty Ltd.

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