

# Goulburn-Murray Water

**Review of Tariff Strategy**

**Final Report**

**#4023944**

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# Executive Summary

Goulburn-Murray Water (GMW) is transitioning towards a uniform Goulburn-Murray Irrigation District (GMID) Infrastructure Access Fee and Infrastructure Use Fee (“delivery tariffs”) for all gravity irrigation customers. It has identified the following five reasons for this change:

1. The current district-based tariffs are not particularly cost reflective
2. There are no strong economic drivers for district-based price signals, where prices are largely based on historical infrastructure investments and new customer growth is low or non-existent
3. Operating each district as a separate, stand-alone business unit with its own accounts and charges is complex and costly
4. Uniform delivery prices provides more predictable and stable pricing - with costs spread across a larger customer base customers are protected from price shocks that affect individual districts.
5. With modernisation through the GMW Connections Project, the cost differentials between the districts will reduce and a common minimum level of service will apply across the entire GMID.

Deloitte Access Economics was engaged by GMW to independently review its reasoning for transitioning to a single GMID price. We have reviewed each of GMW’s reasons for the single tariff strategy above and supporting information provided to us by GMW. We have also considered whether the proposed changes are consistent with the Commonwealth Water Charges Infrastructure Rules and associated pricing principles.

Our view is that GMW’s transition to a single price reflects a sound consideration of the trade-offs between cost reflectivity, appropriate pricing signals and administrative cost and simplicity.

While the final single price will re-align tariffs across existing districts and result in the smearing of historical infrastructure cost differences, our view is that this is likely to have a limited effect on economic efficiency because the price signals largely reflect sunk or system wide (allocated) costs. We note that revenue associated with existing infrastructure, being the return on assets and depreciation, accounts for only 10-15% of total gravity irrigation service revenues. With the Connections Project and the standardisation of service levels, using historical asset costs as the prime basis for district pricing has limited merit.

There are also benefits to moving to a single price, including reduced administrative costs that are already being realised through the transition, and will continue to be realised as the uniform GMID delivery prices are reached. The single price also reduces the impact of severe weather events and large infrastructure investments on individual irrigators.

In relation to the national rural water pricing principles, our view is that the single price adequately achieves the objectives of the economic regulatory framework.

We therefore conclude that GMW’s decision to transition to a uniform GMID delivery prices is a reasonable strategy that appropriately reflects key factors that must be considered when making pricing decisions.

# 1 Introduction

## 1.1 Background

Goulburn-Murray Water (GMW) manages and operates a water delivery system in a region covering 68,000 square kilometres of rural Victoria. As part of this role, it serves over 14,000 gravity irrigation customers across six irrigation districts: Shepparton, Central Goulburn, Rochester, Loddon Valley, Murray Valley and Torrumbarry.

There are two main fees for gravity irrigation customers:

- **Infrastructure Access Fee (IAF)** - Recovers most of the costs of operating, maintaining and renewing the delivery network. The delivery network can include channels, pipes, bridges, road crossings siphons and subways. The fee is fixed and applies per ML a day of delivery share.
- **Infrastructure Use Fee (IUF)** - Recovers a portion of the costs of operating, maintaining and renewing the delivery network. The fee is variable and applies per ML of water delivered during the season.

In 2010, GMW announced a review of how it recovers costs from customers in the gravity irrigation areas, with a goal of simplifying its administration and to ensure clear price signals are provided to customers to inform long term planning.<sup>1</sup> This review was needed because of the significant structural changes that the Connections Project was expected to bring to GMW, with a much greater proportion of shared costs stemming from the modernisation of assets. The review was conducted throughout the 2013 Water Plan period and included consultation with customers and Water Service Committees (WSCs). The proposal to transition to uniform delivery charges was confirmed in GMW's 2013 Blueprint.

GMW is proposing to move towards its new gravity irrigation pricing strategy, by changing the six district tariffs to lead them towards a single price for the entire Goulburn-Murray Irrigation District (GMID). This proposed new tariff strategy means that by 2016-17, the IUF will converge to a single price for all districts, and by 2019-20, the IAF will also converge.

GMW has identified a number of reasons for the transition to uniform GMID delivery tariffs:

1. The current district-based tariffs are no longer particularly cost reflective, because the majority of GMW's costs are incurred system wide and allocated out to districts based on indirect cost drivers and historical price paths
2. There are no strong economic drivers for district-based price signals, where the prices are largely based on historical infrastructure investments and new customer growth is low
3. Operating each district as a separate, stand-alone business unit with its own accounts and charges is complex and costly
4. A single price provides more predictable and stable pricing - with costs spread across a larger customer base customers are protected from price shocks that affect individual districts
5. With modernisation through the GMW Connections Project, the cost differentials between the districts will reduce and a common minimum level of service will apply across the entire GMID.

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<sup>1</sup> GMW Media Release, 4 May 2010, [http://www.g-mwater.com.au/news/media-releases/2010\\_media\\_releases/g-mw-announces-review-to-modernise-pricing-and-tariffs.html](http://www.g-mwater.com.au/news/media-releases/2010_media_releases/g-mw-announces-review-to-modernise-pricing-and-tariffs.html)

## 1.2 Scope of our work

GMW engaged Deloitte Access Economics to independently review its reasoning for transitioning its district-based gravity tariffs to a single GMID price.

Our scope of work includes the following tasks:

- review each of GMW's reasons for the single tariff strategy, based on information to be provided to us by GMW, and indicate whether we believe they are reasonable and sufficient to support the case for a single tariff
- review whether the proposed changes are consistent with the Commonwealth Water Charges Infrastructure Rules and associated pricing principles
- based on the above, form a view as to whether we consider GMW's proposed changes are reasonable.

This report discusses each of the reasons listed in the previous section and the overall rationale for GMW's single price tariff strategy.

## 2 Reasons for the transition to a single price

### 2.1 Introduction

The economic regulatory framework that governs GMW requires that certain principles be taken into account in developing customer tariffs. The pricing principles for GMW's Gravity Irrigation tariffs were determined by the ACCC in 2011, and apply under Part 6 of the *Water Charge (Infrastructure) Rules 2011*, which is the primary economic regulatory legislation governing GMW.

The Part 6 pricing principles contain requirements for the treatment of GMW's asset base, rate of return, operating and capital expenditure and the various other building block components. They also contain some requirements around the structure of GMW's tariffs, which is relevant to GMW's transition to a single price.

The pricing principles require that tariff structures should:

1. promote the economically efficient use of water infrastructure assets
2. ensure sufficient revenue streams to allow efficient delivery of the required services
3. give effect to the principles of user pays in respect of water storage and delivery in irrigation systems
4. achieve pricing transparency
5. facilitate efficient water use and efficient functioning of water markets.

These principles are common to other economic regulatory frameworks for utilities, including electricity, gas and telecommunications. Aside from ensuring that sufficient revenue is recovered from the tariffs, these principles can be reduced to a couple of primary objectives:

- Cost reflectivity, which promotes efficient water use
- Simplicity, transparency and understandability.

While both objectives are important in their own right, there is a trade-off between them, as true cost reflectivity typically requires complex cost allocation and tariff setting. GMW and its customers need to identify the appropriate mix of these two objectives within GMW's tariffs, taking into account:

- The administrative costs of developing tariffs, including cost allocation processes, and the impact on GMW and its customers
- The need for price signals to encourage efficient water use.

### 2.2 Cost reflectivity

Cost reflectivity is important in determining prices, as price is an effective way to send signals to customers to encourage an 'economically efficient' use of resources. If prices are truly cost reflective, then consumers will use an efficient amount of a good or service and one which that balances the costs and benefits of their consumption.

However, there is a trade-off between simplicity and cost reflectivity, as true cost reflectivity can require very detailed cost allocation and more complex tariff structures. Due to this, tariffs are rarely fully cost reflective.

### 2.2.1 Cost reflectivity and sunk costs

Where costs are largely associated with historic infrastructure investments, while there is an important user pays consideration in the pricing principles, the need for prices to exactly reflect these costs in order to be considered 'efficient' is diminished.

This point was made by Frontier Economics in 2008 for the National Water Commission:

*In practice, there are likely to be differences in the cost of supplying users in different locations within a network. However, to the extent that a large part of these cost variations reflect the 'sunk' costs of assets already in the ground; recovering these costs from the broad customer base has no adverse impact on economic efficiency because changed patterns of usage will have no impact on these costs.<sup>2</sup>*

The ESC also considered this issue in the context of its 2011 urban water price review:

#### ***Should retail tariffs better signal differences in distribution costs?***

*Currently the water retailers and most regional water businesses recover their distribution system costs on a postage stamp basis; that is, retail tariffs do not reflect any differences in costs of the distribution system by time or by location.*

*Some regional water businesses set water charges that vary by location. These differences reflect differences in the cost structures of water supply, transport and treatment across the businesses. However, the trend has been toward postage stamp pricing as systems have become more interconnected due to supply augmentations. Some businesses have also identified equity and administrative simplicity as reasons for moving to a uniform water price.<sup>3</sup>*

Generally prices are considered cost reflective by regulators if they take into account the Long Run Marginal Cost (LRMC) of supply, which estimates the long term costs of supplying an additional unit or an additional customer, including fixed costs. For example, the Australian Energy Markets Commission has recently implemented rules to require electricity pricing to be based on LRMC.

LRMC is a forward looking concept – it incorporates the future cost of a marginal unit of additional demand for services, to provide a pricing signal to customers and encourage efficient use of resources. Where costs are largely driven by historical infrastructure investments (and therefore facilitate return on past investments rather than cost recovery for new or ongoing activities), the need to provide pricing signals is reduced. This is particularly the case where there limited is customer growth, as for GMW, for which delivery shares are reducing and customer numbers are also likely to reduce.

We note that GMW has not estimated the LRMC of supply for each district. However, in a context of declining demand and therefore no augmentation capital being required, the concept of LRMC pricing becomes largely irrelevant.

### 2.2.2 GMW's district-based tariffs

While we have not carried out a detailed assessment of GMW's underlying costs and tariff setting processes for this report, based on our previous work with GMW we are aware of the principles that have been applied in setting tariffs and the primary cost drivers underpinning district pricing.

<sup>2</sup> Frontier Economics - [http://archive.nwc.gov.au/\\_data/assets/pdf\\_file/0009/11016/UrbanWaterPricing\\_Waterlines-Body-0708.pdf](http://archive.nwc.gov.au/_data/assets/pdf_file/0009/11016/UrbanWaterPricing_Waterlines-Body-0708.pdf)

<sup>3</sup> ESC 2011 - <http://www.esc.vic.gov.au/getattachment/bc3cc70b-692a-4287-814c-b7c4c26adf9d/Issues-Paper-tariff-issues-for-water-price-review.pdf>

GMW's gravity tariffs reflect a regulated building block framework, incorporating a return on capital, depreciation, operating and maintenance expenditure and tax. The balance between fixed (IAF) and variable (IUF) tariffs is calculated based on a 90:10 revenue split.

We understand this fixed:variable split was selected by GMW and supported by WSCs and the ESC as reflecting an appropriate division of the risks of volume fluctuations between GMW and the gravity customers. Importantly, it does not reflect the mix of fixed and variable costs of serving gravity customers, as the variable costs of GMW's irrigation infrastructure are much lower than 10%. Instead, it reflects the objective of ensuring price and revenue stability for both customers and GMW.

GMW's district gravity tariffs are still based on the historic infrastructure or asset values in each district, reflecting the old Renewals Annuity or Bank Balances approach. This was replaced by the Regulated Asset Base (RAB) which was determined as part of the shift to economic building block regulation in 2006.

GMW's RAB was initially determined at a global level by the Victorian Water Minister, based on a top down assessment of:

- Appropriate returns on GMW's past investments, to facilitate a sustainable business model for GMW to continue operating the assets; and
- Resulting prices that are politically palatable and fair for consumers.

GMW's RAB was set at a low fixed value as at 1 July 2004, then split into districts based on the Renewals Annuity / Bank Balances for each service, and rolled forward for subsequent infrastructure investments in each district for the first Water Plan period. As a result, today the GMW RAB represents only around 7% of the book (or accounting) value of the assets. This highlights the disconnection between the district based Renewals Annuity and RAB framework.

Despite this disconnection, we note that over time, the old Renewals Annuity balances have largely been repaid and recovered by each district. This means that today, the different capital costs recovered in district tariffs are a function of those historical investments, rather than any new or marginal costs.

GMW has advised us that today, around 65% of its operating costs, which reflect 85-90% of customer prices, are incurred or shared on a system wide basis or multiple district basis, due to the comprehensive changes occurring as part of the Connections Project, where modernisation is leading to more standardised service levels.

Retaining district pricing would mean that 65% of all operating costs would be allocated among the districts based on indirect, often arbitrary and imprecise cost drivers. The following table shows the impact of allocating \$10 million of costs through three different allocation methodologies: number of customers, number of service points and delivery shares.

**Table 1: Impact of allocating \$10 million among districts based on different cost allocators (\$m)**

|                  | Number of Customers | Number of Service Points | Delivery Shares |
|------------------|---------------------|--------------------------|-----------------|
| Shepparton       | \$1.81              | \$1.44                   | \$1.14          |
| Central Goulburn | \$2.91              | \$2.83                   | \$2.45          |
| Rochester        | \$1.27              | \$1.29                   | \$1.22          |
| Loddon Valley    | \$0.62              | \$0.83                   | \$1.33          |
| Murray Valley    | \$1.53              | \$1.50                   | \$1.72          |
| Torrumbarry      | \$1.86              | \$2.10                   | \$2.14          |

While each allocation approach might be independently justifiable, depending on the cost being discussed, it is clear that the choice of allocator has a significant impact on the outcome for each



district. This highlights the arbitrary nature of district based pricing where such a high proportion of costs are now incurred system wide or multiple district basis.

### 2.2.3 Regional cost differentials

In examining cost reflectivity it is important to note that while they have been in place for a long time, the existing districts are somewhat arbitrary and supply costs differ both between and within them.

For example, the Broken Creek region, which is located in the Murray Valley District close to the border of the Shepparton district, has much lower costs than other areas of Murray Valley, yet customers pay the same price as the rest of the Murray Valley. This is because compared to the channel area of Murray Valley, the Broken Creek area has fewer and simpler assets to manage. Channels are more labour intensive with more moving parts, gates and meters and are likely to have increased technology costs with the routine maintenance cycle required to meet compliance. The channels and structures impose a significant capital cost, which isn't required in Broken Creek.

Thus true cost reflectivity would require a more disaggregated tariff approach within the Murray Valley, and presumably other districts as well.

Further, given Broken Creek is on the Murray Valley district boundary, it could theoretically be incorporated into Shepparton district if the boundary was changed given the Broken Creek is supplied from the Goulburn system. GMW has estimated the impact that this hypothetical shift of Broken Creek customers would have on the Murray Valley and Shepparton costs and tariffs, set out in the diagram below. These estimates are based on shifting the current 260 ML/day of delivery shares and \$80,000 of annual costs to serve Broken Creek customers from Murray Valley to Shepparton.

**Table 2: Hypothetical district boundary change – Impact of moving Broken Creek customers into the Shepparton district**

| Shepparton   |               | Murray Valley   |               |
|--|---------------|---|---------------|
| Shepparton Delivery Shares (ML/day)                  | 1768          | Murray Valley Delivery Shares (ML/day)                  | 2655          |
| Shepparton Current price per Delivery Share          | \$4,454       | Murray Valley Current price per Delivery Share          | \$3,069       |
| Shepparton Current revenue (cost recovery)           | \$7,874,717   | Murray Valley Current revenue (cost recovery)           | \$8,147,442   |
| Shepparton + Broken Creek Revised price              | \$3,922       | Murray Valley minus BC Revised price                    | \$3,369       |
| <b>Shepparton plus Broken Creek - Price Decrease</b> | <b>-\$532</b> | <b>Murray Valley minus Broken Creek -Price Increase</b> | <b>+\$300</b> |

This hypothetical example highlights that a movement of Broken Creek into the Shepparton district would have significant impact on both the prices paid by the broader Shepparton and Murray Valley customers, as well as the Broken Creek customers themselves. It highlights the arbitrariness of cost allocation between districts, based on legacy district boundaries.

### 2.2.4 Shepparton district costs

Moving the six districts to a single price inevitably means customers in some districts which will pay more, while others will pay less. One of the biggest changes is in the Shepparton district, which has historically faced higher tariffs than the other districts. Shepparton has a higher proportion of smaller properties, which typically have a higher water right intensity per hectare of land, as compared to other districts.

The reasons that Shepparton customers have paid more include:

- In 2008, the Future Flow modernisation project was undertaken in the Shepparton area, upgrading channels and replacing frames. Unlike the Connections Project (from which Shepparton is excluded), no rationalisation of service points was undertaken in Future Flow, and GMW has estimated that 15% of service points could have been removed. GMW has also advised of barriers to channel rationalisation in the Shepparton district. This means that unlike the other districts, Shepparton has not benefited from the rationalisation that is occurring as part of the Connections Project, increasing the costs of maintaining its assets.
- Currently, Shepparton's assets are generally older than the other districts, meaning there is a higher maintenance and replacement capital requirement. GMW has advised that this is particularly affected by the need for bridges and syphons on the East Goulburn Main, which are allocated to Shepparton.

During our review, GMW provided us with a long term analysis of district capital and maintenance costs for its channels and structures over 50 years, taking into account planned estimated future capital expenditure for each district and forecast reductions in delivery shares occurring under the Connections Project. Channels and structures represent the most material components of future expenditure.

This 'whole of life' analysis, which is presented in an Appendix below, suggests that while Shepparton currently has the highest cost per delivery share, within two years this will no longer be the case, as capital requirements in Loddon Valley will drive its costs higher than Shepparton. After 20 years, Murray Valley will be the most expensive district on a per delivery share basis. While Central Goulburn is currently a relatively lower cost district, this changes after 23 years when capital investments are required there and it becomes the most expensive district for the following 10 years.

Shepparton had the highest Renewals Bank deficit at the start of the transition to the regulatory RAB approach in 2006, at \$8.5 million. This has been paid back to GMW through pricing over 2006-15, and the deficit currently stands at around \$500,000. As a result, even in the absence of the single price strategy, Shepparton's gravity tariffs will fall towards the other districts' pricing in the next few years as the final Renewals Bank deficit is repaid.

Finally, we note that Shepparton has historically featured lower actual water deliveries as a proportion of its delivery share than the GMID average. This means that while its variable charges (IUF) have been lower than anticipated, Shepparton customers have paid higher fixed tariffs (IAF) as a proportion of the water they used than other GMW customers.

The drivers of higher costs in Shepparton are largely factors that are beyond the control of the areas' irrigators, and it is therefore arguable that continuing a higher price signal is unnecessary from an efficiency perspective.

It has been suggested that the single price strategy will lead to other districts cross-subsidising the higher cost Shepparton district. By definition, economically inefficient cross-subsidisation occurs when customers are paying less than their short run marginal cost (SRMC). As discussed above, the majority of GMW's gravity irrigation supply costs are fixed, and variable costs make up less than 10% of total costs of supply. Each district is therefore facing prices that are above their SRMC, and will continue to do so under the single price strategy. Although we have not undertaken detailed estimates, each district's prices are also likely to be below their standalone costs of service, which is consistent with the economically efficient bounds used in regulatory pricing for other industries, such as electricity and gas.

As also noted in this paper, the allocation of fixed costs to districts is in some cases arbitrary. The transition to a single price will mean that some of the fixed costs reflected in Shepparton customers' prices are reallocated to all other district customers, however, this does not imply that inefficient cross-subsidisation is occurring.

## 2.3 Simplicity

As discussed above, simplicity is another important objective of price setting, as the costs of first determining and then communicating complex tariffs to customers are not insignificant.

The shift to a single GMID price is one component of a broader package of GMW organisational and tariff changes occurring as a result of the Connections Project. Transitioning to a single price has already reduced the administrative costs of annual tariff approvals, due to the simplification of tariff calculations and cost allocation processes over the past two years.

While GMW had been reporting at a district level through annual Profit and Loss statements, this process has been rationalised significantly. District pricing reflects an overarching business strategy that requires more detailed reporting of costs and activities at the district level, and maintaining district pricing going forward will therefore require the reversal of recent rationalisations. District pricing will ultimately require additional resources when compared to the single price strategy.

Tariff modelling has also been simplified, reducing the need for regulatory and pricing team resources.

The costs of arranging and maintaining customer billing will also be reduced as a result of a single GMID price. There are approximately 2,800 pricing combinations set up in GMW's billing system, due to the district pricing structure, made up of 48 separate data elements that combine to generate the individual district prices. The single price will reduce the combination of prices to several hundred instead of several thousand. Although the single tariff will be unlikely to deliver FTE savings from the accounts receivable team, GMW has indicated that it will deliver reduced risk, greater simplicity and improved customer service, through the following benefits:

- Reduced workload in setting up the annual prices in the billing system
- Fewer data elements to be maintained
- Lower risk of errors in the pricing and data element inputs
- Simpler for staff to understand and maintain
- Fewer customer complaints due to fewer errors.

GMW has described the annual tariff approvals process to us, and confirmed that it requires a large number of steps, from requesting and then verifying data for each service, calculating the overhead cost allocation, revising the tariff model including accounting for any new tariffs, ensuring compliance with GMW's revenue cap, consulting with WSCs on the new tariffs, seeking ESC approval and planning and finally implementing the new tariffs and communicating the changes to customers.

The simplification of gravity tariffs has reduced the complexity and therefore the cost of undertaking each of these steps, as each report and presentation requires the calculation (or explanation) of a single GMID price (or currently the transition to that single price) rather than separate prices and cost allocations for each district.

The flow on effects of rationalising the gravity tariffs will reduce the labour requirement for numerous management activities in GMW's Customer Operations group, including developing and reviewing budgets by service level for Water Plans and Annual Price Reviews, calculating annual prices for each group, monitoring reporting and forecasting expenditure by Service.

GMW has estimated the impact of the single price strategy from an annual FTE perspective:

- Professional Services - 3 FTE reduction (one each from Budgeting & Forecasting, Pricing & Regulation, Financial Reporting)
- Customer Services - 5 FTE reduction (from Business Support, Customer Administration and Customer Service Management roles).

The savings available from these FTE reductions are estimated by GMW to range between \$850,000 to \$1 million per annum.

The simplification of district pricing processes has already resulted in some labour savings which has contributed to the start of GMW's Business Transformation Program. While it is not possible to identify the cost reductions solely due to the tariff simplification, the Business Transformation Program has delivered actual operating expenditure of \$15.8 million lower than forecast in the Water Plan 3 period and a reduction in finance staff. We note that any shift back to district pricing will require reinvestment in finance staff in order to reintroduce district reporting.

The single price strategy also opens opportunities for GMW to further reduce the complexity of its financial systems, including its Chart of Accounts, which is currently designed around district pricing. GMW has advised us that currently, the Chart of Accounts involves the management of:

- 219 Services (or individual businesses)
- 40 Resource Centres (Internal service providers)
- 9,720 Job Costing Numbers which are used to allocate costing (expenditure) to the appropriate Service.

The simplification of this complex system offers obvious benefits, however we note that the consolidation of reporting and accounting practices requires a consideration of the trade-off between granularity of information and administrative costs.

## 2.4 Price stability and risk

A single GMID price offers the benefit of reduced risks for each district, as the costs of one-off events are distributed among a larger customer base.

For example, the severe floods in Western Victoria early in 2011 affected Torrumbarry and Pyramid Hill (in the Loddon Valley district), which were under water for several weeks. The floods damaged GMW's infrastructure and it incurred significant overtime and contractor costs in managing the response to maintain and restore supply and from the damage. This event led to an increase in operating expenditure of \$4.22 million.

If the 2011 flood had impacted only one district, the proportional increase in district prices would be significant. The following table illustrates the potential impact that this \$4.22 million flood could have had on the district tariffs, if the costs were allocated based on delivery shares.

**Table 3: Impact of a \$4.22 million flood on District Pricing**

| District                            | Delivery shares | Flood recovered in 1 year - percentage increase | Flood recovered in 4 years percentage increase |
|-------------------------------------|-----------------|---|--|
| Shepparton                          | 1768            | 50%   | 12%  |
| Central Goulburn                    | 3781            | 34%   | 8%   |
| Rochester                           | 1888            | 78%   | 20%  |
| Loddon Valley                       | 2055            | 62%   | 15%  |
| Murray Valley                       | 2655            | 53%   | 13%  |
| Torrumbarry                         | 3298            | 41%   | 10%  |
| <b>All districts – costs shared</b> | <b>15,444</b>   | <b>9%</b>                                       | <b>2%</b>                                      |

This example highlights the benefits of sharing the risk of severe weather events across the GMID through a single tariff.

We note that some areas of the GMID are more prone to floods than others, and that this risk may be reflected in lower land values for those areas.

However, a single price protects customers from price shocks associated with a range of factors that are both within and outside of GMW's customers' control, including asset failure, electricity supply failure and storm damage.

## 2.5 Impact of the Connections Project

GMW is transforming its gravity irrigation delivery system through the \$2 billion Connection Project modernisation program. This will automate the backbone of major irrigation channels in the form of a water 'super-highway' and replace the previous spur channels with new, modernised connections.

The Connections Project will have a profound effect on GMW's future operating environment affecting how it delivers water, the skills and labour required to manage the system, the extent and nature of its costs and the likely pattern of demand. As discussed in section 2.2.1, the Connections Project has resulted in a larger proportion of GMW's costs being incurred on a system wide basis.

The new backbone will provide for an increased level of service across the entire GMID, resulting in standardisation of service levels and reducing overall variation between districts. Service standards may continue to vary across the GMID due to the nature of the Connections Project investments. However, differences in service levels will not be on a geographic basis, reducing the relevance of district-based pricing.

The primary objective of district based pricing was to allow each area to make decisions about the trade-off between service levels and prices. The standardisation of service levels between districts, through the centrally provided and Government funded Connections Project to a large extent overrides the district-level decision making, reducing the benefit of separate pricing.

The Connections Project is predominately paid for by the Victorian and Australian Governments, and setting tariffs based on the cost of sunk assets which are in many cases no longer being used does not in any way contribute to economic efficiency. The extent and reach of the Connections Project highlights the way in which some districts have at times benefited from Government contributions, while others missed out, depending on a range of factors including the political situation at the time. This further highlights the arbitrariness of setting individual district prices based on sunk asset costs.

## 2.6 Other utilities' pricing

GMW has similar characteristics to other network utilities, including electricity, gas and telecommunications networks, to the extent that:

- They are essential services, providing fundamental inputs into business and domestic life
- They are natural monopolies, meaning that it would be uneconomic for more than one network to exist
- They have high fixed costs due to the large amount of infrastructure required to ensure access for all customers
- It costs more to provide services to some customers than others. For example, electricity customers in less dense, rural locations will be expensive to serve compared to higher-density urban areas (because network size and distance drives higher costs).

Electricity, gas and telecommunications service providers do not generally charge fees for usage or network infrastructure based on the location of their customers, instead typically (but not always) applying 'postage stamp' pricing which shares the greater costs of low density customers among all customers. 'Postage stamp' pricing recognises that the choice of where a customer lives or conducts their business is not driven by the marginal costs of utilities. For example, Powercor owns and

operates an electricity distribution network that covers a vast area of Western Victoria and its network charges are identical for customers from Footscray to the South Australian border.

Locational pricing is used in the pricing of new customer connections for electricity and gas services, where customers requiring connection to the network are charged a capital contribution reflecting the cost of their additional connection, including construction costs and downstream impacts of their demand. This is designed to encourage efficient choices in connection location, for example, rural customers may have a number of options for the connection point to their property with varying costs to the utility and to themselves. These location price signals are important where there is customer growth, however, where customer numbers are stable, and volumes are declining (such as in GMW's case), the need for locational pricing signals are reduced.

In electricity network utilities, cost reflective pricing is based around the factors that are within a customer's control, such as how much they use and when they use it. For example, the Victorian Government's smart meter rollout allows for network tariffs to vary according to a customer's time of use. This is efficient because the cost of maintaining the electricity network is significantly impacted by peak demand growth, so providing price signals to encourage customers to use energy at off-peak times will deliver more efficient use of the network infrastructure.

It is worth noting that after amalgamations in the 1990s, most Victorian urban water businesses moved to a single tariff structure across their entire region. This occurred despite very different supply arrangements – including different costs, level of water quality and supply security. Most businesses felt that a single tariff provided a simpler and more equitable arrangement across the region, reduced administrative costs, and encouraged regional supply solutions to emerge. It also avoided sharp fluctuations in bills, particularly in smaller towns. In some cases the previous tariff differentials were very large – for example sewerage tariffs in Daylesford were several times that in Ballarat before the move to a single price.

Some urban businesses – including Wannon Water (Warrnambool region), Grampians Wimmera Mallee Water, North East Water (Wodonga) and Coliban Water (Bendigo – which has two separate tariff zones) are the key exceptions to these arrangements and have maintained different tariffs. However in most cases the different tariffs are based on levels of water quality rather than inherent costs.

With the Connections Project, the standardisation of service levels across the GMID means that there is a reduced need for differentiated pricing in order to reflect different service level trade-offs.

## 3 Conclusions

GMW's transition to a single price reflects a sound consideration of the trade-offs between cost reflectivity, appropriate pricing signals and administrative cost and simplicity. While the final single price will re-align tariffs across existing districts and result in the smearing of historical infrastructure cost differences, our view is that this is likely to have a very limited effect on economic efficiency because the price signals reflect sunk or incurred system wide (allocated) costs. With the Connections Project and the standardisation of service levels, using historical asset costs as the prime basis for district pricing has limited merit.

There are also benefits to moving to a single price, including reduced administrative costs that are already being realised through the transition, and will continue to be realised as the single GMID price is reached. The single price also reduces the impact of severe weather events and large infrastructure investments on individual irrigators.

In relation to the national rural water pricing principles, our view is that the single price adequately achieves the objectives of the economic regulatory framework, as set out in the following table.

**Table 4: The Single Price and compliance with Pricing Principles**

| Pricing Principle  | How this is achieved through transitioning to a single price  |
|--|---|
| Promote the economically efficient use of water infrastructure assets                                    | Given the historical infrastructure basis of district pricing, the move to a single price will not reduce the signals for efficient water use           |
| Ensure sufficient revenue streams to allow efficient delivery of the required services                   | A single price will allow GMW to more easily monitor its revenue recovery and balance the risks of reducing delivery shares across more customers       |
| Give effect to the principle of user pays in respect of water storage and delivery in irrigation systems | At an aggregate level, there will be no change in the level of cost recovery from users in respect of water storage and delivery in irrigation systems. |
| Achieve pricing transparency   | A single price will be simpler to explain and implement, and GMID-wide reporting will maintain the current transparency of costs and revenues.          |
| Facilitate efficient water use and efficient functioning of water markets.                               | The transition will not materially affect efficient water use or water markets.   |

We therefore conclude that GMW's decision to transition to a single GMID price is a reasonable strategy that appropriately reflects key factors that must be considered when making pricing decisions.

# 4 Limitation of our work

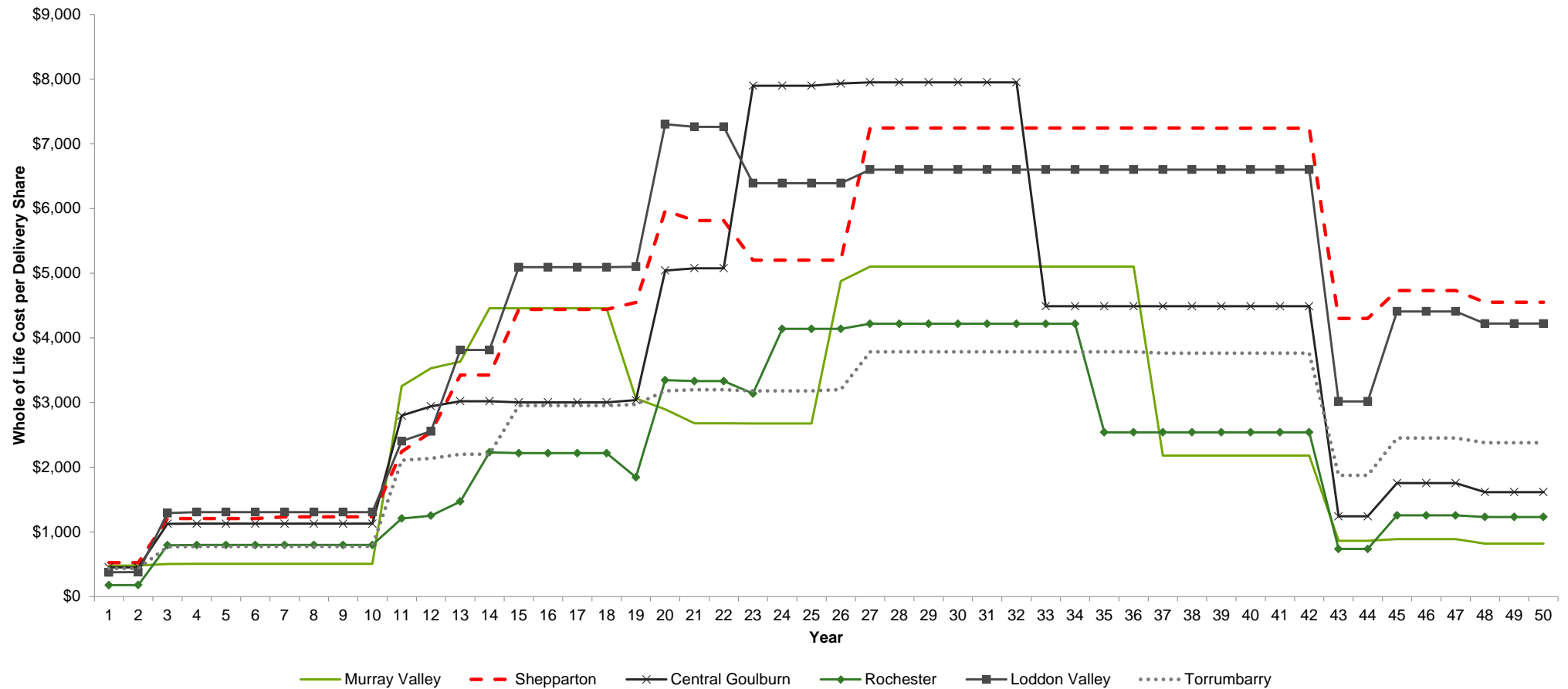
## General use restriction

This report is prepared solely for the use of Goulburn-Murray Water. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose set out in our engagement letter dated 7 July 2015. You should not refer to or use our name or the advice for any other purpose.

We note that we have not audited or attempted to verify the data that GMW provided us to support our findings, however our conclusions are based on our understanding of GMW's tariffs and revenue recovery which has been developed over a number of engagements.



# Appendix – District Channels and Structures Whole of Life Cost Analysis



Source: GMW. Note this reflects renewals and maintenance costs only, and excludes non-backbone structures.